Government of Saskatchewan

Annual Report 2004-05

Saskatchewan Environment

State of Drinking Water Quality in Saskatchewan

and the

Safe Drinking Water Strategy

Saskatchewan Centennial 2005

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Letters of Transmittal

July 2005
Her Honour the Honourable Dr. Lynda M. Haverstock
Lieutenant Governor
Province of Saskatchewan

May It Please Your Honour:

I respectfully submit the combined Annual Report on the State of Drinking Water Quality and the Safe Drinking Water Strategy for the fiscal year ending March 31, 2005.

Respectfully submitted,

David Forbes
Minister of Environment

The Honourable David Forbes
Minister of Environment

Dear Sir:

I respectfully submit the combined Annual Report on the State of Drinking Water Quality and the Safe Drinking Water Strategy for the fiscal year ending March 31, 2005.

The 2004-2005 report describes the drinking water related goals and objectives of departments and agencies involved in drinking water and source water protection activities in Saskatchewan. Key partners in the implementation of the Safe Drinking Water Strategy include Saskatchewan Environment, Saskatchewan Health, Regional Health Authorities, Saskatchewan Watershed Authority, SaskWater, Saskatchewan Government Relations and Saskatchewan Agriculture and Food.

Saskatchewan Environment is proud of government's dedicated professional staff who are committed to ensuring safe drinking water and take a leadership role in all that they do. The department welcomes the opportunity to report on the protection, conservation and sustainable development of Saskatchewan's drinking water and related source water resources. This report provides information on water related programs and services and identifies the progress made to protect and improve the quality and sustainability of Saskatchewan's drinking water supplies and source waters.

As Saskatchewan celebrates it's Centennial as a Province of Canada, we have an opportunity to focus on the future and to think about and plan for sustaining and protecting drinking water resources in Saskatchewan's second century.

Respectfully submitted,

Lily Stonehouse
Deputy Minister

Introduction

Safe drinking water is a vital component in the protection of public health and disease prevention and therefore essential for the health and well being of Saskatchewan's citizens. High quality water is important in maintaining natural ecosystems and the species that depend upon them, the productivity of industry, sustaining commerce and is vital to ensuring productive farms and ranches. The quality of drinking water, the condition of systems that produce it and protection of source waters remains an important public health and environmental issue in Saskatchewan at the present time and for the future.

Again this year, the report combines information on the status of drinking water, which was first reported on for the 2002-03 fiscal year, with annual reporting on the implementation of the Safe Drinking Water Strategy. The Safe Drinking Water Strategy was announced in April 2002 and forms the Government of Saskatchewan's strategic approach to improve the quality and management of drinking water in the province. Since the Strategy is intended to improve drinking water, reporting on the status of drinking water and the Strategy are being combined into this comprehensive report. Reporting in this manner will foster greater understanding of the steps being taken and progress achieved towards improved drinking water in Saskatchewan.

This is the third annual report on the Status of Drinking Water in Saskatchewan. This report is intended to inform residents of Saskatchewan of the status of drinking water quality, waterworks infrastructure, source water protection and water related items and measures in the province over the April 1, 2004 to March 31, 2005 period. The report is a legislated requirement under *The Environmental Management and Protection Act, 2002* and will be provided on an annual basis in future years.

The report outlines the roles, responsibilities and resources of departments and agencies involved in water management, the regulatory framework and activities undertaken by the Government of Saskatchewan to manage drinking water. The report also discusses drinking water quality monitoring, operator certification, laboratory accreditation, source protection, information management systems and public education initiatives which are key actions and indicators of performance in reaching the goals and objectives of the Safe Drinking Water Strategy. An update on progress in addressing the recommendations of the *Report of the Commission of Inquiry* into the City of North Battleford's drinking water is available on the Internet (http://www.SaskH2O.ca/news.asp).

The report was built on contributions from Saskatchewan Environment; Saskatchewan Health; Saskatchewan Watershed Authority; SaskWater; Saskatchewan Government Relations; Saskatchewan Agriculture and Food; and the Municipal Financing Corporation. Saskatchewan Environment's Drinking Water Quality Section compiled the report.

The complete 2004-05 performance plan for the strategy was published in conjunction with the 2004-05 budget in March 2004 and is available on the Internet (http://www.se.gov.sk.ca/environment/protection/water/2004-05PerformancePlan-DrinkingWater.pdf). Reporting on planned actions and measures serves as a solid tool for communicating progress on improving the quality of drinking water. This annual report describes results for the key actions included in *Our Plan for 2004-05*, the Government-wide plan released with the 2004-05 budget, available on the Internet (http://www.gov.sk.ca/finance/budget/budget04/2004papers.htm).

This is the second time results from the Safe Drinking Water Strategy have been published in this comprehensive manner. In 2002-03, a report on the status of drinking water in Saskatchewan reported on some key results and measurement results. Improvements in the annual report are tied to continued implementation of the Government's Accountability Framework. Reporting year-end performance and financial results on both the Safe Drinking Water Strategy and the status of drinking water in Saskatchewan, increases accountability to the public. A performance plan for the Safe Drinking Water Strategy for the 2005-06 fiscal year was published on March 23, 2005 with the release of the 2005-06 provincial budget. A copy of the plan is available on the Internet (http://www.gov.sk.ca/finance/accountability/default.htm).

What is Safe Drinking Water Strategy?

The Safe Drinking Water Strategy is a comprehensive plan of action designed to deal with the risks that affect drinking water and impacts the health of Saskatchewan residents. The Strategy will also provide more assurances to citizens of the province that government is helping to ensure the water we drink is safe. The Strategy was created as one of a series of Government measures to address drinking water quality and management following the tragedy in Walkerton, Ontario where people died because of contaminated drinking water. It also responds to recommendations from the North Battleford Commission of Inquiry, which examined the waterborne Cryptosporidiosis outbreak that affected that city in 2001. The vision of the Strategy is a sustainable, reliable, safe and clean supply of drinking water that is valued by the citizens of Saskatchewan.

Several departments and agencies are involved in implementing the Strategy including Saskatchewan Environment; Saskatchewan Health; Regional Health Authorities; Saskatchewan Watershed Authority; SaskWater; Saskatchewan Government Relations (formerly Saskatchewan Government Relations and Aboriginal Affairs); and Saskatchewan Agriculture and Food (formerly Saskatchewan Agriculture, Food and Rural Revitalization). The following is a summary of the major roles, priorities and actions of each of the government departments and agencies involved in the implementation of this Strategy.

Saskatchewan Environment

- leads ongoing planning, implementation and reporting work for the Strategy to which all participating departments and agencies contribute;
- implementation, inspections and compliance for 562 licensed municipal waterworks, 16 permitted pipelines, 63 large private, government and other permitted waterworks and 617 wastewater facilities regulated under *The Water Regulations, 2002*;
- issues permits for construction and operation of water and wastewater works;
- policy, protocol, water quality standard and guideline development to support protection of drinking water and implementation of *The Water Regulations, 2002*;
- operator certification liaison;
- manages the drinking water information system Environmental Management System that houses water quality and inspection data for all Saskatchewan Environment regulated waterworks (drinking water and wastewater) in the province; and
- manages the *SaskH2O.ca* Website that supplies a broad range of drinking water related information gathered from water management authorities within the province.

Saskatchewan Government Relations

- water infrastructure financial assistance under the new Canada-Saskatchewan Municipal Rural Infrastructure Fund (CSMRIF), the Canada-Saskatchewan Infrastructure Program (CSIP) and the Northern Water and Sewer Program;
- legislation and regulations regarding municipal protection of water sources through planning bylaws; and
- legislation and regulations regarding pricing and capital investment policies for municipal waterworks.

Saskatchewan Watershed Authority

- source (surface/ground) water protection;
- watershed and aquifer planning;
- water management infrastructure;
- waterworks approval (except municipal);
- water allocation; and
- "State of Watershed Reporting".

Saskatchewan Health/Health Regions

- responsible for inspection and compliance at semi-public waterworks and certain other waterworks as required by *The Health Hazard Regulations*;
- data management systems for Public Health Inspectors and laboratory information;
- water analysis through the Provincial Laboratory; and
- provides advice and deals with waterborne illnesses.

Saskatchewan Agriculture and Food

- *The Agricultural Operations Act* – intensive livestock provisions;
- *The Irrigation Act, 1996;*
- pesticide application licenses;
- research, demonstrations and technology transfer;
- farm water supplies; and
- Environmental Farm Planning (part of the Federal/Provincial Agricultural Policy Framework).

SaskWater

- provides water and wastewater services;
- designs, builds, owns and operates water supply and wastewater systems;
- provides certified operation and maintenance for customer-owned systems;
- coordinates system assessments and audits; and,
- provides program and project management services, First Nations training and technical support.

Saskatchewan Environment, Saskatchewan Health and the individual Health Regions deliver aspects of the Strategy through a system of centralized planning, protocol and standards development and regionalized inspection and compliance services. As a result of department reorganization at the outset of the 2004-05 fiscal year, Saskatchewan Environment's staff complement totaled 37.7 Full Time Equivalents (FTE) for delivery of all aspects of the department's contribution to the Strategy and drinking water management activities. An additional three FTE's are employed by Saskatchewan Environment in the management of the Environmental Management System and the *SaskH2O.ca* Website. Saskatchewan Health Provincial Laboratory has 19.5 FTEs that are dedicated to water testing and the accreditation program in support of the Safe Drinking Water Strategy. Health Region Public Health Inspectors, Medical Health Officers and Public Health Nurses also play a role in water related activities (i.e. inspection of semi-public water supplies, issuance of Emergency Boil Water Orders, water borne disease investigations). To enhance inspection capacity and drinking water safety, funding in the amount of $476,000 was allocated to the Regional Health Authorities and Regional Targeted Programs and Services.

Saskatchewan Agriculture and Food has nine FTEs that deliver intensive livestock inspection and regulatory approval services to ensure protection of water resources from intensive livestock operations. Two full time positions are housed within the Development Division addressing environmental issues related to livestock development with respect to research, development, engineering and technology transfer. Seven staff are members of the Aquifer/Watershed planning technical committees. The department also develops and distributes management and technology information for conservation and grazing and crop production that reduce and/or minimize impacts to water resources.

The Pest Control Products (Saskatchewan) Act and regulations require any individual who uses or applies a pesticide hold a valid pesticide applicator license. An applicant for a pesticide applicator license must pass a pesticide applicator course. Pesticide applicator courses are offered by the Business and Agriculture Division of the Saskatchewan Institute of Applied Science and Technology. There is a high value placed on education of the user of pesticides to mitigate the risks associated with pesticide usage. Training is recognized internationally as a key tool in risk reduction. Training results in more responsible use of pesticides, while keeping the environment safe for the public.

Saskatchewan Government Relations' water related programming is mainly provided through centralized policy development and program delivery services.

Key partners outside the provincial government include the federal government through the CSIP and CSMRIF programs, participants in the Agricultural Policy Framework, municipalities and other waterworks owners, the Saskatchewan Urban Municipalities Association, the Saskatchewan Association of Rural Municipalities, the Saskatchewan Water and Wastewater Association and the Operator Certification Board. The Saskatchewan Association of Rural Municipalities and the Saskatchewan Urban Municipalities Association were key partners during consultation on the Strategy, and continue to help in its further development and implementation through workshops and programming. The

Saskatchewan Water and Wastewater Association and the Operator Certification Board have been instrumental in advancing waterworks operator certification in the province. The Operator Certification Board is appointed by Government, but operates at arm's length in considering the qualification and standing of water and wastewater works operators in the Province. Key stakeholders are consulted on a periodic basis to aid in the ongoing development and delivery of the Strategy.

The sections of the report that follow provide information on the status of drinking water in Saskatchewan during 2004-05. Further information on drinking water quality is available on the SaskH2O Website (http://www.SaskH2O.ca) and on Saskatchewan Environment's Website (http://www.se.gov.sk.ca). Additional detailed background information regarding drinking water quality in Saskatchewan is available on the internet at http://www.SaskH2O.ca/news.asp . The following sections also report on the key actions and the level of performance in achieving key indicators of improvement in drinking water and related protection and enhancement measures of the Strategy.

Reporting on the Strategy is one step in implementing the Government of Saskatchewan's Accountability Framework. Transparency regarding the status of drinking water is intended to improve trust in drinking water supplies and the waterworks systems that produce it. Public reporting is intended to further the accountability of the departments and agencies that are implementing the Safe Drinking Water Strategy. Next year's annual report will again address both the status of drinking water and the published 2005-06 strategic plan.

SaskH2O

2004-05 Results at a Glance
Key Accomplishments

Summary of Performance Results

This section provides readers with an overview of the status of drinking water and accomplishments on key actions, performance measures and financial expenditures for the Safe Drinking Water Strategy for 2004-05.

Goal 1 - Waterworks systems and operations provide safe, clean and sustainable drinking water

- The number of operators certified to date increased by 170 for a total of 752. A summary of communities with Certified Operators, System Classification and Operator Classification as of March 31, 2005 is available on the Internet (http://www.saskh2o.ca/WaterInformationFactSheet_annualreport.asp).
- The Guidelines for Canadian Drinking Water Quality are now being included in each new waterworks permit. Permitting for municipal waterworks initiated in 2003-04 continued through the 2004-05 fiscal year. A total of 545 waterworks were issued new permits since the implementation of the Strategy.
- Compliance with bacteriological water quality standards (90 per cent of the time) increased from 86.3 per cent in 2003-04 to 95.2 per cent for the 2004-05 fiscal year.
- Compliance with the disinfection standard rose from 84 per cent in 2003-04 to 90.2 per cent in 2004-05.
- SaskWater provided technical assistance and training for 109 operators on 54 First Nations and four operators in three northern communities, as well as tutoring operators preparing for their operator certification.
- SaskWater managed $3.2M of its own capital projects in 2004 and managed projects worth another $5.9M on behalf of municipal and government customers.
- Under the CSIP, 58 water and sewer projects were approved for funding, including 13 in northern Saskatchewan, for a total commitment of $16.5 million in federal-provincial funding. Also, $2 million under the strategic component of the CSIP was allocated to northern water and sewer projects. By the end of the year, $11.4 million was paid out under the CSIP to new and previously approved multi-year water and sewer projects.
- The CSMRIF was announced by the government to provide funding for water and sewer projects starting in 2005-06 and replaces the CSIP that ends after 2005-06.
- In 2004-05, $6.2 million was spent on water and sewer projects in 29 northern communities under the Northern Water and Sewer Program.

Goal 2 – The drinking water regulatory system is clear and effective

- Saskatchewan Environment conducted 792 waterworks and 528 sewage works inspections.
- Health Region public health inspectors continued to inspect public water supplies that are now regulated by *The Health Hazard Regulations, 2002*.
- The Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment was revised on two occasions and implementation continued.
- During the fiscal year, there were 77 Precautionary Drinking Water Advisories and eight Emergency Boil Water Orders issued for waterworks regulated by Saskatchewan Environment. The numbers of advisories and orders issued are substantially down from 2003-04 when 107 and 16 respectively were ordered.
- There were 23 Precautionary Drinking Water Advisories and 13 Emergency Boil Water Orders issued for waterworks regulated by Health Regions during the fiscal year. At the end of the fiscal year there were 16 Precautionary Drinking Water Advisories and 11 Emergency Boil Water Orders in effect at Health regulated waterworks.
- Approximately 48 upsets at waterworks were reported and addressed during 2004-05 due to problems such as disinfection or filtration equipment failure, breakages in water lines/depressurization, flooding or other failures. These upsets resulted in the issuance of Precautionary Drinking Water Advisories or Emergency Boil Water Orders.

- Saskatchewan Environment issued 136 permits to construct, upgrade or alter waterworks or sewage works. Approximately 197 waterworks system assessments were initiated or completed by the end of the reporting period.
- Ongoing implementation of Saskatchewan Environment's Drinking Water and Wastewater Enforcement Protocol resulted in 80 written orders, five Ministerial Orders, one administrative penalty and one conviction under *The Environmental Management and Protection Act, 2002*.
- Two additional laboratories received accreditation by the Standards Council of Canada in 2004-05.
- Compliance with waterworks quality assurance/quality control and emergency response planning requirements was advanced to approximately 96 per cent.

Goal 3 – High quality source waters are protected now and into the future

- The Saskatchewan Watershed Authority continued development of source water protection plans through the work of advisory and technical committees for the Lower Souris, Upper Assiniboine, Moose Jaw, Upper Qu'Appelle, South Saskatchewan and North Saskatchewan watersheds and the Yorkton aquifer.
- Saskatchewan Environment continues as champion of the federal-provincial-territorial process to improve wastewater management across Canada.
- The Saskatchewan Watershed Authority has secured 22 Voluntary Stewardship Agreements to conserve 711 hectares of native prairie with additional Voluntary Stewardship Agreements pending.
- Saskatchewan Watershed Authority and Saskatchewan Agriculture and Food worked with a watershed planning committee to initiate the first equivalent environmental farm plan under the Agriculture Policy Framework. This plan looks at water issues on all participating farms and will be an important contribution to source water protection.
- Saskatchewan Agriculture and Food provides funding through the Agriculture Development Fund for research and development of treatment and processing technologies that help to add value to manure and minimize the potential for contaminants from agricultural operations to impact the environment.
- Saskatchewan Government Relations worked with the Saskatchewan Watershed Authority on all of the current watershed plans and coordinated with the Authority representation at stakeholder meetings to provide information on implementation of watershed planning and upcoming municipal responsibilities.

Goal 4 – Citizens and consumers trust and value their drinking water and the operations which produce it

- Based on a March 2005 poll conducted by Saskatchewan Environment, 68 per cent of people polled are willing to pay more to improve their drinking water. This value is 6.1 per cent greater than the previous poll in May 2003 and seven per cent greater than the December 2001 poll prior to implementation of the Strategy.
- Based on a March 2005 Saskatchewan Environment poll, 86 per cent of people polled strongly or moderately agree that they are confident in the safety of their own drinking water. This value is essentially the same as previous survey results down one per cent from May 2003 (but still within the margin of error) and still represents an increase of 14 per cent since December 2001 when 72 per cent of people surveyed were very or somewhat confident in the quality of their tap water.
- The number of waterworks owners that publicly released information to the consumers they serve increased from 359 to 508 over the period ending March 31, 2005.
- On June 29, 2003 the SaskH2O website went on line to provide up to date information on drinking water quality to the public on a community specific basis. Over 20,4000 visitors, 21 months later, had logged onto the website with an average of 2.7 visits each.
- Based on the latest available information, average provincial per capita consumption for the period January 1 to December 31, 2003 was 369 Litres per Capita per Day or LCD (81.17 Imperial gallons).

Summary of Financial Results

- Actual expenditures relating to the strategy in 2004-05 were $21.280 million, which was $2.707 million lower than the budgeted expenditures of $23.987 million. This net variance is primarily attributable to lower than anticipated funding provided to municipalities under the Canada Saskatchewan Infrastructure Program due to wet weather induced project delays as well as staff vacancies. Saskatchewan Environment's FTE utilization for drinking water related programming during the 2004-05 fiscal year totaled 31.4 of 37.7 budgeted FTEs, the result of vacancies, delayed staffing and secondments. Saskatchewan Health FTE utilization for the Provincial Laboratory was at the full level of 19.5 FTE's during the reporting period. In addition to the FTEs within Saskatchewan Health, funding is provided to Regional Health Authorities for water related programs and surveillance. It is difficult to state the actual number of Regional Health Authority FTEs that are dedicated to water as a number of different disciplines (i.e. Medical Health Officers, Public Health Inspectors and Public Health Nurses) can become involved in water and or water related disease surveillance.

- Under the CSIP, administered by Saskatchewan Government Relations, financial support is provided to municipalities and other waterworks owners for priority drinking water and wastewater infrastructure improvements. By the end of the year, $11.4 million was paid out under the CSIP to new and previously approved multi-year water and sewer projects. A list of 2004-05 approved projects for CSIP funding is available on the Internet (www.SaskH2O.ca/news.asp).

2004-05 Performance Results and the Status of Saskatchewan's Drinking Water

The following is a summary of information on the status of drinking water in Saskatchewan and progress on the goals, objectives, key actions and performance measures of the Safe Drinking Water Strategy. Further information is available by contacting Saskatchewan Environment or on the Internet (from http://www.SaskH2O.ca).

Management uses performance information to assess overall progress towards the goals and objectives of the Strategy each year. In turn, review and assessment each year allows and directs the most effective adjustment of future plans and actions to address priority elements under the Strategy. Elements of the Strategy, refocused as a result of this assessment, will see further concentration on ensuring options for provision of safe drinking water in small communities, implementation of operator certification and water quality standards in the 2005-06 fiscal year.

The key actions originally presented in the 2004-05 plan are listed below, followed by a report on actual progress for each. Actual results information is included for all key actions and performance measures that were published in our *2004-05 Performance Plan* as well as for all commitments related to the Safe Drinking Water Strategy in the government–wide *2004-05 Performance Plan Summary*. On March 23, 2004, a 2004-05 Performance Plan for the Strategy was released and is available on the Internet (http://www.se.gov.sk.ca/environment/protection/water/2004-05PerformancePlan-DrinkingWater.pdf). Further descriptions of the performance measures are included in this document and can also be obtained from Saskatchewan Environment. In general, performance in addressing drinking water quality and source water protection management through the Safe Drinking Water Strategy in Saskatchewan has paralleled or exceeded performance in other Canadian provinces where similar strategic initiatives are in place.

Goal 1 - Waterworks systems and operations provide safe, clean and sustainable drinking water

Objective 1 –Waterworks staff are capable and well-trained

Provision of safe drinking water is highly reliant on the knowledge and capabilities of waterworks operators and the manner in which they apply their skills to produce and monitor the quality of drinking water. Along with source protection, sound and capable infrastructure and water quality monitoring, knowledgeable operators capable of sound waterworks operations are one of the elements of a "multi-barrier approach" to ensure safe drinking water. During 2004-05, significant progress was made in advancing this objective. There were approximately 1,880 operator certification exams written and an additional 170 operators became certified. A review of operator certification requirements was initiated to examine the feasibility of enhancing operator training regulations to require all operators working at Saskatchewan Environment regulated waterworks be certified to some level by 2010.

Key Results

The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- Take actions to support compliance with the July 2005 operator certification requirements by encouraging the development of cooperative solutions with service providers, refining and implement a system of shared "regional operators" and liaising with the SWWA. Workshops and meetings will also be held to advance compliance with operator certification. [2004-05 planned result – Environment]

  Saskatchewan Environment developed and publicized a policy on regional/contract waterworks operators and partnered with the Saskatchewan Water and Wastewater Association (SWWA) and the Saskatchewan Urban Municipalities Association (SUMA) to initiate and publicize this policy. The

department contributed to workshops and conventions held by SUMA, the Saskatchewan Association of Rural Municipalities (SARM), SWWA and New North on drinking water as a means to advance operator certification. Operator training and certification continues and is making good progress. Approximately 1880 exams were written over the 2004-05 reporting period.

- Keeping track of changes in water treatment methods is done through annual training and is vital to ensuring high quality drinking water is produced. Regulations now require that waterworks operators obtain additional training annually in order to maintain their certification status. Partners such as the Saskatchewan Institute of Applied Science and Technology (SIAST) and SWAA will be engaged to ensure the development and delivery of learning opportunities and assess critical issues such as recruitment, training and retention of operators. [2004-05 planned result – Environment]

  Continuing operator education/training has been incorporated into *The Water Regulations, 2002*, which became law on December 5, 2002. Saskatchewan Environment along with SIAST, community colleges, the Saskatchewan Water and Wastewater Association (SWWA) and private corporations provide training opportunities in the province. During the reporting period Saskatchewan Environment worked with SIAST to ensure a smooth transition and continuing coordination of training opportunities after SWWA withdrew from direct management of this role after five years of service. Saskatchewan Environment also continues to serve on committees with educators to advance training curricula and opportunities in and related to continuing education in Saskatchewan. This year, Saskatchewan Environment has aided in delivery of a northern water workshop and the annual meeting of SWWA that offered additional operator training and continuing education credits.

- Initiate a review of operator certification requirements in 2004 to examine the feasibility of enhancing operator training regulations to require that all operators working at Environment regulated waterworks be certified to some level by 2010. Reactivate the Certification Advisory Committee (CAC) to aid in the review process. [2004-05 planned result – Environment]

  Saskatchewan Environment initiated the review of the operator certification program in August 2004. The intent of the review is to facilitate any needed revisions to enhance the success of operator certification and examine and possibly to set early timelines for the certification of all operators at waterworks over and above the requirement to have at least one certified operator at each treatment system. This is being achieved through the reactivation of the Certification Advisory Committee, the committee first used during the development of the certification requirements that came into effect in July 2000. During 2004-05 there were six meetings of the CAC. Work is ongoing in 2005-06 to complete this initiative.

  In terms of overall progress on operator certification, the Operator Certification Board continued to certify water and wastewater works operators throughout 2004-05. As of March 31, 2005, there were 326 waterworks licensed by Saskatchewan Environment with at least one certified operator, which included 202 waterworks that were in early compliance with operator certification standards. Many other operators have taken exams and were in the process of obtaining certification as of the end of the reporting period. Saskatchewan Environment will continue to work with municipalities, waterworks owners and others to advance operator certification in the future.

Table 1 provides additional information on the number of communities with certified operators since 2000-01.

Table 1: Certification Summary Water and Wastewater Works (Source – Saskatchewan Environment certification records database)

	2000-01	2001-02	2002-03	2003-04	2004-05
Certified operators*	44	293	403	533	682
Communities with certified operators	24	116	217	219	326
Communities meeting new standards	1	35	92	144	202
Per cent meeting new standard	0.2%	5.7%	15%	23%	35%***
Number of licensed works**	609	609	617	630	641***

* Operators working in Saskatchewan Environment regulated waterworks.
**Licensed works includes water treatment works, water distribution systems, wastewater treatment works and wastewater collection systems.
*** 64 of the licensed waterworks in the province have applied for or been granted hygienic classification. Waterworks classified as hygienic systems do not require a certified operator. Percentage compliance is based on the reduced number of human consumptive systems waterworks requiring certification (577). Additionally, many other waterworks operators were in the process of examination or certification as of the end of the reporting period.

Table 2 provides information on the number of operators certified at various levels in all categories of the water and wastewater treatment industry in Saskatchewan during 2004-05.

Table 2: Distribution of Certified Operators at Water and Wastewater Works - Fiscal Year 2004-05 (Source: Saskatchewan Environment certification records database)

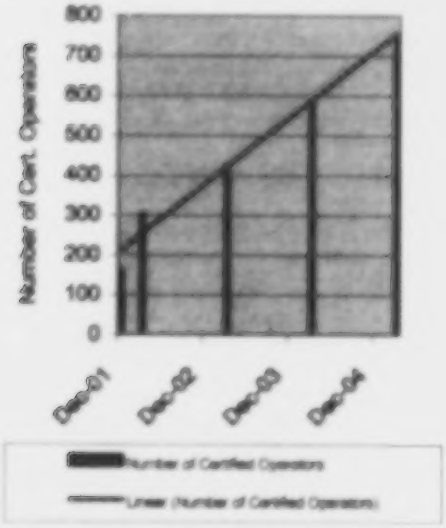
System Classification	Water Treatment	Water Distribution	Wastewater Treatment	Wastewater Collection
Small System[1]	87	87	55	55
Class-1	249	286	237	221
Class-2	155	134	36	62
Class-3	42	10	12	3
Class-4	19	2	5	2
Total	552	519	345	343

[1] There are two types of Small Systems. A Small Water System is defined as a Class-1 groundwater treatment and/or Class-1 distribution system, serving fewer than 500 people. A Small Wastewater System is a Class-1 wastewater treatment system (generally a lagoon system) and/or a Class-1 collection system serving fewer than 500 people.

A summary of communities with Certified Operators, System Classification and Operator Classification as of March 31, 2005 is available on the Internet (www.SaskH2O.ca/foroperators.asp)

Measurement Results
Number of certified operators

Figure 1: Summary of Certified Operator Trends



Source: Saskatchewan Environment certification records database

During 2004-05, the number of all certified operators reported by the Operator Certification Board increased to 752 as of March 31, 2005. This is an increase of 170 over the previous year and measures all certified operators, including those that do not operate waterworks regulated by Saskatchewan Environment. The steady increase in the number of certified operators since the introduction of certification requirements in July 2000 shows the success of operator certification efforts to date. In 2004-05, changes were made to create a self-funding system to support administration of operator examinations with all certification exams being facilitated by one agency. These changes may affect the rate at which operators are certified in 2005-06 and beyond.

Knowledgeable, certified operators help to ensure safe drinking water. The number of certified operator is key to ensuring the delivery of safe drinking water and therefore a reason this performance measure was selected. In the future, this performance measure will focus the percentage of communities with an operator certified to some level that provides a better measure of overall success of the objective of waterworks staff that are capable and well-trained.

Objective 2: Infrastructure produces water that meets the National Drinking Water Quality Guidelines

Infrastructure design, capability, condition and maintenance are critical in the production of safe drinking water. Standards, incentives, requirements, compliance measures and implementation plans must also be in place to ensure waterworks are operated and monitored to achieve drinking water of a quality that protects human health. The National Drinking Water Quality Guidelines (http://www.hc-sc.gc.ca/hecs-sesc/water/pdf/summary.pdf) are used in Canada as the definitive measure of science based safety criteria for drinking water. Saskatchewan has now adopted the guidelines as standards (http://www.se.gov.sk.ca /environment/protection/water/Drinking_Water_Standards_post.pdf).

During 2004-05, progress continued in advancing this objective. Phase-in of water quality standards continues at existing waterworks and are in full effect at new waterworks. Compliance with bacteriological drinking water quality standards is high having increased to 95.2 per cent. Compliance with the disinfection standard is also high having increased by 6.2 per cent to 90.2 per cent in 2004-05. In cases where compliance is not attained, Saskatchewan Environment follows up through the use of inspections, Precautionary Drinking Water Advisories or warnings as a means to help improve water quality and protect consumers. In 2004, $6.5 million was spent under the Northern Water and Sewer Program in 28 communities. Under the CSIP, 57 water and sewer projects were approved for funding, including 13 in northern Saskatchewan, for a total commitment of $16.4 million in federal-provincial funding. By the end of the year, $11.4 million was paid out under the CSIP to new and previously approved multi-year water and sewer projects. The CSMRIF announced by the government will provide funding for water and sewer projects starting in 2005-06 and replace the CSIP that ends after 2005-06.

Key Results
The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- To ensure provision of safe water and compliance with regulatory requirements for key water quality standards now in effect (bacteriological, chemical, radiological quality and turbidity), inspections, record review procedures and compliance activities will continue. Two inspections at each surface water and priority groundwater waterworks and one inspection at every other regulated waterworks will be completed during 2004-05 for a total of approximately 900 inspections. [2004-05 planned result – Environment]

  Saskatchewan Environment continues to conduct waterworks inspections across the province and also uses this as an opportunity to reinforce the need for upgrading to meet drinking water quality standards. Permit conditions have reinforced the established timelines for compliance with water quality standards. Over the reporting period, 792 waterworks inspections were completed in accordance with inspection targets.

  In terms of the status of drinking water in Saskatchewan, the bacteriological quality of water is critical since when the related standards are exceeded there is a possibility of significant health effects for consumers. Implementation of water quality standards is achieved through permitting, inspection and follow-up on monitoring results. Saskatchewan uses coliform bacteria as an indicator of the quality of drinking water. Saskatchewan's standards for bacteriological drinking water quality are more stringent than the Guidelines for Canadian Drinking Water Quality. The number of samples required for bacteriological water quality monitoring of a waterworks is based on the number of people served by the system (see Municipal Drinking Water Quality Monitoring Guidelines at http://www.SaskH2O.ca/foroperators.asp)When a routine water sample shows the presence of bacteria, follow-up activities including repeat sampling are performed. Saskatchewan Environment issued four Precautionary Drinking Water Advisories during 2004-05 when bacteriological related problems arose at waterworks

  During 2004-05, there were 22,859 valid routine bacteriological water quality samples submitted of which 377 samples (1.65 per cent) exceeded the water quality standards of zero total coliforms, zero fecal coliforms or greater than 200 background bacteria per 100 millilitres of water. During 2004-05, a total 22,859 of 22,602 (101.14 per cent) of the required regular samples for bacteriological water quality were submitted from waterworks regulated by Saskatchewan Environment. This is a slight increase from 2003-04 when total sample submission compliance was 100.45 per cent. The slight increase in total sample submission resulted from 274 facilities submitting more than 100 per cent of required samples during 2004-05.

  There were 216 waterworks in the province that exceeded the bacteriological standards at least one time during 2004-05. During the same time period, there were zero waterworks that had more than 50 per cent of their routine bacteriological water samples show the presence of bacteria. Ten locations had between 25 and 45 per cent of their routine samples exceed the bacteriological water quality standards (Goodeve, Love, Osage, Sarnia Beach, St. Victor, Swan Plain, Thode, Tuffnell, Verwood and Yellow Creek). A total of 31 regulated waterworks had greater than 10 per cent of their regular bacteriological samples test positive during the fiscal year. See Figure 3 for more information on the performance of waterworks regulated by Saskatchewan Environment in meeting bacteriological water quality standards.

  Turbidity is a measure of the "cloudiness" of water and is an indirect measure of the number of suspended particles in water. Turbidity is a good indicator of the effectiveness of a water treatment system and is important because turbid water can harbor disease-causing organisms. Turbidity monitoring of Saskatchewan Environment regulated waterworks is required at least on a daily basis as a means to track water treatment system performance.

Saskatchewan Environment now has stringent standards for turbidity. These standards are being phased-in for existing waterworks and take effect upon the start-up of any new waterworks. During phase-in of the turbidity standards, the department generally applied a turbidity standard of 1.0 Nephelometric Turbidity Units (NTU) for existing waterworks. During the 2004-05 fiscal year, municipalities were not required to submit routine turbidity monitoring results. However, on-site monitoring for turbidity and record keeping is required and these records are checked during site inspections by Environmental Project Officers.

During 2004-05, Saskatchewan Environment staff focused efforts on helping waterworks owners and operators to track turbidity-monitoring results and manage turbidity related water quality problems. There were 13 Precautionary Drinking Water Advisories issued during 2004-05 when turbidity related problems arose at waterworks. Turbidity testing results are being reported in conjunction with information submitted with regular bacteriological samples.

The range of turbidity results tested by all agencies in 2004-05 (municipal, private and government owners) is shown in Table 3.

Table 3: Range of Turbidity Testing Results

Turbidity Range (NTU)	Samples	Per Cent Samples	Systems*
0 – 1	18,607	89.60 %	537
1 – 2	1,396	6.73 %	250
2 – 3	365	1.76 %	113
3 – 4	204	0.98 %	63
4 – 5	9	0.04 %	36
5+	185	0.89 %	48
Totals	**20,766**	**100 %**	

* Some systems had turbidities in more than one range of turbidity values.

Disinfection of drinking water is one of the key methods to prevent the spread of waterborne disease. Most disinfection of drinking water in the province is performed using chlorine-based products. Waterworks regulated by Saskatchewan Environment are required to maintain:

a) a free chlorine residual of not less than 0.1 milligrams per Litre (mg/L) in the water entering a distribution system; and
(b) a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L in the water throughout the distribution system.

Chlorine disinfectant monitoring usually includes two tests: total chlorine residual and free chlorine residual. Free chlorine residual in drinking water is important in providing lasting protection in water distribution systems. Total chlorine residual is helpful for waterworks operators to understand the effectiveness of disinfection and to judge cleanliness of the water distribution system. On-site monitoring for chlorine residual and associated record keeping is required and these records are checked during site inspections by Saskatchewan Environment's Environmental Project Officers. During 2004-05, staff continued to emphasize the need for waterworks operators to monitor and track chlorine residual as a means to help ensure water quality. During 2004-05, Saskatchewan Environment issued eight Precautionary Drinking Water Advisories as a result of chlorination related concerns or problems at waterworks.

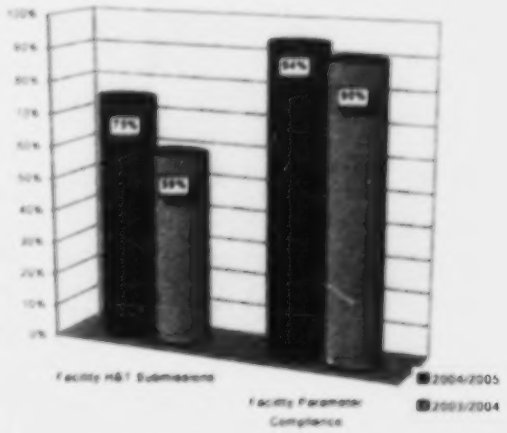
Chlorine residual test results are reported in conjunction with information submitted with regular bacteriological samples. These measurements are taken at the same location as for bacteriological sampling and represent chlorine residuals in the distribution system. As previously noted, a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L must be maintained in the water throughout the distribution system. During 2004-05, 577 out of 640 waterworks reported distribution system free chlorine or total chlorine residuals within regulatory limits 90 per cent of the time for an overall reported compliance rate of 90.2 per cent. See Figure 4 for more information on the performance of waterworks regulated by Saskatchewan Environment in meeting disinfectant level requirements.

- To ensure compliance, the Canadian Guidelines have been included as legally enforceable requirements in *The Water Regulations, 2002* and are also being cited as enforceable waterworks conditions in all new and altered permits. Existing waterworks permits are being reviewed and revised to reflect new standards for water quality at all Saskatchewan Environment regulated waterworks. [2004-05 planned result – Environment]

The Guidelines for Canadian Drinking Water Quality are the basis which Saskatchewan Environment used for the water quality standards found in *The Water Regulations, 2002*. These standards are now included in each new waterworks permit. Permitting for municipal waterworks initiated in 2003-04 continued though the 2004-05 fiscal year. A total of 545 waterworks have been issued new permits since the implementation of the Strategy. Permitting of newly regulated works proceeds as these works become regulated. The drinking water quality standards are being phased-in over the next four to six years for existing waterworks and take effect upon the start-up of any new waterworks. In terms of the status of drinking water in Saskatchewan, the "health and toxicity" water quality parameters include a range of naturally occurring substances (i.e. Arsenic, Boron, Nitrate, Selenium, Uranium, etc) and other substances such as trihalomethanes, which may be produced during chlorine based disinfection processes. These substances may represent a very small potential for adverse health effects to consumers over longer time periods. A complete listing of the health and toxicity substances monitored at Saskatchewan Environment regulated waterworks is available at http://www.SaskH2O.ca/foroperators.asp (see Municipal Drinking Water Quality Monitoring Guidelines). Implementation of these water quality standards is achieved through permitting, inspection and follow-up on monitoring results.

Figure 2: Health and Toxicity Facility Submission and Parameter Result Compliance

Arsenic	4	Boron	1
Cadmium	0	Chromium	0
Copper	0	Lead	0
Nitrate	23	Selenium	4
Uranium	20		
Exceedence Totals	**52**		



Source: Saskatchewan Environment – Environmental Management System

In 2004-05, there were 33 facilities that exceeded at least one health and toxicity related chemical standard resulting in a total of 52 exceedences.

During the 2004-05 fiscal year, 75 per cent of Saskatchewan Environment's licensed waterworks submitted the required heath and toxicity samples. Ninety-four per cent of these waterworks met the drinking water quality objectives for health and toxicity related chemicals. Figure 2 shows these results compared to the results for last year. Owners of waterworks not submitting required samples are provided notification on a quarterly basis to ensure long-term compliance with sample submission requirements.

During the 2004/05 fiscal year, 11 facilities exceeded the maximum acceptable concentration for fluoride on 71 sampling occasions. Three of these facilities (Ferland, Frontier and Rush Lake) have high, naturally

occurring fluoride in their ground water supplies, which accounted for 46 of the 71 exceedences. Saskatchewan Environment monitors results from all systems that artificially fluoridate or have high naturally occurring fluoride.

The present standard for Trihalomethanes now being phased-in at existing waterworks is 100 parts per billion based on an average of four seasonal samples. Saskatchewan Environment is presently examining the need to revise this water quality standard to a more stringent value.

A total of 194 surface water treatment and delivery facilities were required to participate in the Trihalomethane monitoring program during the 2004-05 fiscal year, which should result in 804 samples being submitted each year. The actual number of regulated waterworks that submitted samples was 178 (91.75 per cent). A total of 679 samples (84.5 per cent overall compliance) were submitted by the facilities. During 2004-05, 143 regulated waterworks (73.7 per cent) submitted 432 samples for analysis that met the maximum acceptable concentration for Trihalomethanes in drinking water. During 2004-05, 96 of 194 regulated waterworks (49.5 per cent) produced water that met the Trihalomethane objective of 100 ug/L based on the annual average of seasonal sampling.

- SaskWater will continue to pursue a 'cluster strategy' to establish regional anchors from which water services are delivered. Clusters result in economies of scale, allowing the more cost efficient and effective delivery of services compared to service provision on a one-off basis. Experience over the past year has led to development and successful marketing of certified Operation and Management distribution and wastewater treatment packages for communities. [2004-05 planned result – SaskWater]

SaskWater continues to develop business proposals/solutions with its municipal, industrial and community clients with a focus on growing its hub and spoke strategy. This strategy is aimed at establishing regional anchors or hubs from which water and wastewater services are delivered. Clusters result in economies of scale, allowing the more cost efficient and effective delivery of services compared to service provision on a one-off basis. Services are offered in various lines of business including certified operations and maintenance (O&M), water supply and treatment, project management and waterworks evaluations.

SaskWater assists its community clients in determining a water price and water utility budget based on commerciality, where Water Rate = Capital + Operating Cost. In addition, discussions always include a strong emphasis on the need to ensure long-term utility sustainability.

SaskWater owns six water treatment plants, 30 water pump stations and over 770 kilometres of pipeline. Through this network, the company provides water (potable and non-potable) to 49 municipal customers, 37 industrial customers, 42 public water boards, user groups, co-operatives and pipeline associations that supply water to about 1,140 rural households and farms and 330 individual households.

SaskWater's stand-alone water treatment plants are located at Gravelbourg, Edenwold, Pierceland and White City. Its two large plants, producing water for regional systems in central Saskatchewan, are located at Wakaw and Melfort. SaskWater's water supply and wastewater systems provide water and wastewater treatment that meets or exceeds regulatory requirements.

New SaskWater treated water supply customers include Cudworth, Star City, Star City Colony and White City. Star City and Star City Colony are supplied by means of an expansion of SaskWater's Melfort regional water supply system. Cudworth is supplied with treated water from SaskWater's Wakaw-Humboldt Regional Water Supply System. White City has a dedicated water supply and treatment system.

SaskWater launched Certified Operations and Maintenance (O&M) as a new line of business late in 2002. SaskWater partners with communities to provide certified operations and maintenance of their water and

wastewater utilities, including water supply, treatment, storage, distribution and wastewater treatment and disposal. SaskWater also provides customer and regulatory reporting, 24/7 continuous monitoring, emergency planning and customer support services. SaskWater works with customers to determine an appropriate level of service depending on the existing infrastructure and the customer's needs. All services are supervised or performed by certified operators.

Certified O&M services are currently provided to seven municipal customers and one rural pipeline association. Vanscoy, Edenwold, Star City and the North Central Rural Pipeline Association were added as new certified O&M customers in 2004.

SaskWater also provided technical assistance and training for 109 operators on 54 First Nations and four operators in three northern communities, as well as tutoring operators preparing for their operator certification.

- To assist northern municipalities in providing safe drinking water and ensuring sewer systems do not contaminate surrounding areas and water sources, $6.5 million has been allocated under the Northern Water and Sewer Program for 17 water projects and seven sewer projects in northern Saskatchewan, of which $2 million will be CSIP funding. In addition, $800,000 will be available under the Northern Emergency Water and Sewer Program for emergency repairs to water and sewer systems. Also, $283,000 will be made available for providing engineering, operating and maintenance expertise and advice to northern communities on their water and sewage systems. [2004-05 planned result – Government Relations]

  The Northern Water and Sewer Program is a six-year $35 million program that was established in 2000 to upgrade water and sewer systems in 35 communities in northern Saskatchewan. Program funding comes from the CSIP, the Centenary Fund, the Northern Revenue Sharing Trust Account, Indian and Northern Affairs Canada and municipalities. CSIP ends after 2005-06.

  In 2004-05, $6.2 million was spent under the Northern Water and Sewer Program in 29 communities. Under the Northern Emergency Program, about $70,000 was spent on northern water and sewer system repairs that arose during the year. Also, a contract for $287,900 was signed for engineering operating and maintenance advice to northern communities on water and sewer systems. A list of the communities funded under the Northern Water and Sewer Program and the Northern Emergency Program is provided on the Internet (www.SaskH2O.ca/news.asp).

- In 2004-05, the remaining funding under the CSIP will be allocated. Under the CSIP, $18 million of federal-provincial funding will be allocated to municipal applications, of which the majority will go to address critical water and sewer needs. There is $10 million remaining to allocate in the strategic component of the CSIP, from which up to $2 million will be allocated to the northern water and sewer projects. In addition, $5 million will be provided to multi-year projects that were approved in prior years. This funding will assist municipalities in providing safe drinking water and ensuring sewer systems do not contaminate surrounding areas and water sources. [2004-05 planned result – Government Relations]

  Under the CSIP, 58 water and sewer projects were approved for funding, including 13 in northern Saskatchewan, for a total commitment of $16.5 million in federal-provincial funding. Also, $2 million under the strategic component of the CSIP was allocated to northern water and sewer projects. By the end of the year, $11.4 million was paid out under the CSIP to new and previously approved multi-year water and sewer projects.

  The CSMRIF announced by the government, will provide funding for water and sewer projects starting in 2005-06 and replace the CSIP that ends after 2005-06.

In addition to progress made on planned actions, other key accomplishments included:

SaskWater
In northern Saskatchewan SaskWater plays a key role in planning and managing the design and construction of water and wastewater infrastructure. SaskWater signed an agreement with the Northern Revenue Sharing Trust Account Management Board (NRSTAMB) to provide program management of what has become a six-year $35 million initiative to construct and upgrade the water and wastewater infrastructure in Saskatchewan's 35 northern communities. The program, announced in 2000 by Saskatchewan Government Relations, serves the 35 communities in the Northern Administration District (NAD) with the goal of providing safe and secure water supplies and environmentally acceptable wastewater disposal in the north.

SaskWater services include managing the program budget, technical advice for conceptual and feasibility studies, project management during the design and construction of the facilities and assistance with start-up and operation. In 2004, SaskWater also responded to six water quality and system emergencies in the northern communities on behalf of the NRSTAMB. The problems encountered and solutions to these challenges ranged from well failure and repairs in Weyakwin, to sewage forcemain collapse and replacement at Jans Bay, to sewage lagoon secondary cell breach and intermediate repairs in Stony Rapids.

In 2004, SaskWater provided project management for the design and construction of subdivision lots in northern communities on behalf of the NRSTAMB. Work included the design and tendering of sewer and water mains, streets, telephone and power for 16 lots in Denare Beach, and construction of 24 lots in Pinehouse and a 35 lot subdivision in Ile-a-La-Crosse.

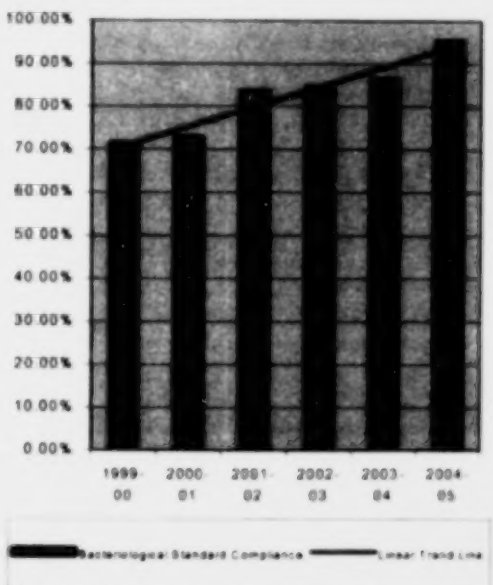
In addition to the emergency and subdivision projects, in 2004 SaskWater managed 40 water and sewer construction projects worth $5.6M in 26 northern communities which included well and water treatment plant upgrades and a new sewage pumping station for La Loche, a water treatment plant upgrade in Pinehouse, a new sewage pumping station in Buffalo Narrows and expansion of the Beauval sewage lagoon.

SaskWater's role, backed by 20 years of experience in northern engineering, of providing project management and general technical advice to northern communities is vital to the success of the northern program.

SaskWater is also working with its strategic partners SUMA and Consulting Engineers of Saskatchewan (CES) to help communities meet *The Water Regulations, 2002*. Regulations require operators of permitted systems to provide a detailed waterworks system assessment to Saskatchewan Environment before the end of 2005. There are approximately 640 permitted waterworks systems in Saskatchewan, and only a certain number of engineers available to do the work before the end of the year. SaskWater acts as technical manager of the program, designed to help communities meet the regulations on time and as affordably as possible. SaskWater tendered assessments for 169 communities in 2004 and expects to complete a similar number in 2005.

Measurement Results
Per cent of facilities that meet bacteriological guidelines 90 per cent of the time

Figure 3: Bacteriological Standards Compliance

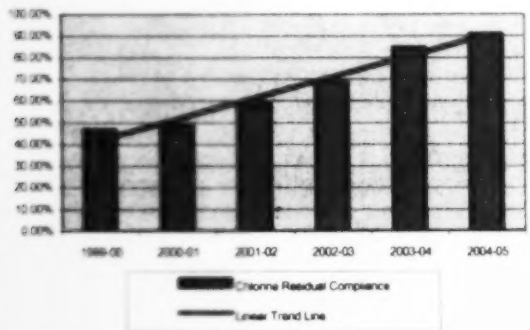


Source: Saskatchewan Environment – Environmental Management System

There has been a steady increase in compliance with bacteriological water quality standards (90 per cent of the time) over the past three fiscal years with a 8.9 per cent increase in compliance from 86.3 for 2003-04 to 95.2 per cent for the 2004-05 fiscal year. The steady increase in compliance with standards is the result of increased inspection and follow-up on water quality sampling results by Saskatchewan Environment staff as well as increased attention to water treatment and monitoring by waterworks owners and operators. The bacteriological quality of drinking water is important since contamination of this type can result in significant illness within a short period of time. Compliance with bacteriological water quality standards was selected as a reportable performance measure, since it provides a good indication of drinking water quality, which is important to consumers. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats.

Per cent of waterworks [regulated by Saskatchewan Environment] that meet disinfection requirements 90 per cent of the time

Figure 4: Disinfection Standard Compliance

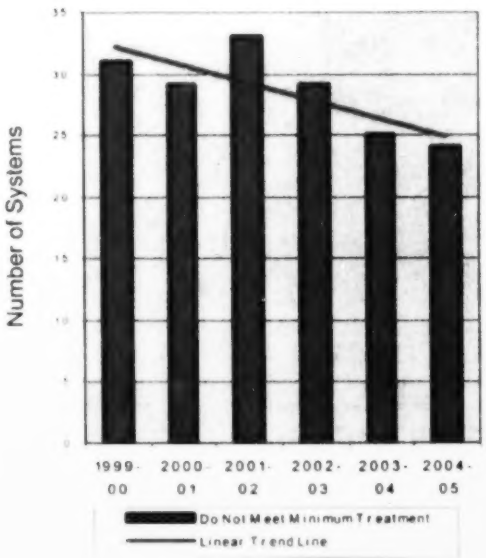


Source: Saskatchewan Environment – Environmental Management System

There has been a significant increase in compliance with the disinfection standards over the past fiscal year with a 6.2 per cent increase in compliance from 84 per cent in 2003-04 to 90.2 per cent in 2004-05. The increase in compliance with the disinfection standards can be directly attributed to an increased field presence by Saskatchewan Environment inspection staff and a renewed awareness by waterworks owners and operators of the regulatory requirements. Proper disinfection of drinking water is one of the most important ways to ensure safe drinking water and prevent the outbreak of waterborne diseases. Compliance with chlorine residual requirements was selected as a reportable performance measure, since it provides a good indication of drinking water protection, which is important to consumers. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats and meets disinfection standards.

Number of waterworks regulated by Saskatchewan Environment that do not meet minimum treatment requirements [broken down by pre and post regulatory changes]

Figure 5: Number of Waterworks Regulated by Saskatchewan Environment that do not Meet Minimum Treatment Requirements [broken down by pre and post regulatory changes].



Source: Saskatchewan Environment-Environmental Management System

As of March 31, 2005, there are a net of 24 waterworks that do not meet Saskatchewan Environment's minimum treatment requirements, a net decline of 4 per cent since the previous year when there were 25 such works. Table 4 provides a summary of waterworks not meeting minimum treatment requirements broken down by pre and post regulatory changes. The decrease is the result of ongoing educational efforts as well as funding provided through the CSIP to upgrade works. Saskatchewan Environment's educational and compliance efforts will continue during 2005-06 as a means to reduce the number of waterworks not meeting minimum treatment requirements. 2005-06 will be the final year for funding under the CSIP. As expected, as newly regulated waterworks are permitted, inadequacies in water treatment capability are discovered, which explains the increase in waterworks not meeting minimum treatment requirements in this category.

Table 4: Waterworks Not Meeting Minimum Treatment Requirements [broken down by pre and post regulatory changes].

	March 31, 2004	March 31, 2005	Annual Change
Waterworks regulated before regulatory changes	20	17	↓ 3
Waterworks regulated following regulatory changes	5	7	↑ 2
Total	25	24	↓ 1

Source: Saskatchewan Environment – Environmental Management System

The number of waterworks that do not meet minimum treatment requirements is a direct indication of the magnitude of potential water quality concerns due to infrastructure inadequacies. In total, waterworks that do not meet minimum treatment requirements serve a population of approximately 1,700 residents or 0.17 per cent of the population of the province (estimated provincial population of 995,280, January 2005). This measure was selected as a reportable performance measure, since it provides a direct count of the number of waterworks in the province not capable of producing safe drinking water. All waterworks regulated by Saskatchewan Environment and not meeting minimum treatment requirements are placed on Precautionary Drinking Water Advisories as a means to protect consumers. The department also provides technical advise to communities not meeting minimum treatment requirements to aid waterworks owners to work towards system improvements.

Objective 3: Waterworks systems and operations are financially sustainable

Ensuring the financial sustainability of waterworks is critical in the production of safe drinking water over the long-term. Waterworks deteriorate over time and may need to be expanded or replaced. Municipalities will therefore need to know the condition of their waterworks and put in place pricing and capital investment policies for these systems. Public transparency will aid in ensuring that waterworks systems are sustainable into the future.

During 2004-05, progress was made in developing the regulations that will support this objective. Consultations were undertaken on new regulations that will require municipalities to establish and report on pricing and capital investment policies for their waterworks.

Key Results

The key action originally planned for 2004-05 is shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- Consultation and enactment is planned for regulations requiring municipalities to establish and publicly report on pricing and capital investment polices for their waterworks. They will be required to also report on waterworks expenditures, revenues and level of cost recovery. These regulations will provide greater municipal accountability to ratepayers and promote greater understanding of municipal waterworks. Ratepayers can evaluate this information and determine if they are satisfied with the rate and capital investment policies. [2004-05 planned result – Government Relations]

Consultations were undertaken on these regulations with the municipal sector and other stakeholders outside of government. The regulations were simplified and a second round of consultations was undertaken.

Measurement Results

Number of municipalities with pricing and capital investment policies in place for their waterworks

This measure was established to gauge compliance with new regulations that are planned to become effective in 2006, requiring municipalities to put in place pricing and capital investment policies for their waterworks. Since the measure is aimed at a future event, we are unable to report results for the 2004-05 fiscal year or provide trend information for this measure. Presently, less than five per cent of municipalities have pricing and capital investment policies in place for their waterworks. The number of municipalities with pricing and capital investment policies in place for their waterworks is an indication of the extent that municipalities have considered waterworks rates and capital investment plans that address infrastructure needs, which will work towards financial sustainability and ensure safe drinking water.

Goal 2 – The drinking water regulatory system is clear and effective

Objective 1: Regulations are clear and ensure that health and drinking water quality will be protected

Provision of safe drinking water is reliant on regulatory requirements that are clear and communicated to owners and operators of waterworks. Additionally, accepted standards and practices are required to ensure requirements are achieved in the proper manner. Program delivery and related policies are necessary to track and ensure that regulatory requirements are being met. Collectively, these measures will help to ensure drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment.

During 2004-05, significant progress has continued on advancing this objective. Inspection protocols remain in place and Saskatchewan Environment conducted 792 waterworks inspections and 528 wastewater works inspections at which time information on regulatory requirements was provided directly. Newly developed protocols for upset reporting and hygienic waterworks were implemented to offer more immediate response to waterworks related problems and challenges while implementation of existing protocols for waterworks, sewage works and pipeline inspection continued. The follow-up protocol for dealing with bacteriological water quality problems was also revised on two occasions, implemented and publicized by Saskatchewan Environment, Saskatchewan Health and Health Regions.

Key Results

The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- Permits reflective of the new regulatory requirements and revised water quality monitoring schedules will continue to be issued by Saskatchewan Environment for newly constructed and existing works as a means to ensure systems are able to produce quality water. [2004-05 planned result – Environment]

  Saskatchewan Environment has issued 545 waterworks operational permits since the implementation of the Strategy. A total of 136 permits to construct or upgrade water or sewage works (85 waterworks construction and 51 sewage works construction, including 22 combined water/sewage works) were issued over the 2004-05 reporting period. Total project cost from these 136 permits was $38.1 million. An additional 31 applications for upgrading or construction were in the queue as of March 31, 2005. To facilitate understanding of permitting requirements and consistent application across the province, comprehensive permitting protocols for human consumptive and hygienic waterworks have been developed and posted on the internet (http://www.SaskH2O.ca).

- Work will continue with SUMA, SaskWater, consulting engineers and others to implement a program to facilitate waterworks assessment in the province. Waterworks assessment standards will continue to be provided to waterworks owners to inform them of the requirements and timelines of the assessment process. [2004-05 planned result – Environment]

  With input from Saskatchewan Environment, a strategic partnership has been formed between SUMA and SaskWater to facilitate coordination and price reduction for completing waterworks system assessments in Saskatchewan. Saskatchewan Environment promoted the value of waterworks systems assessments by a variety of means such as convention workshops, discussions with waterworks owners and through inspections. Distribution of a standard which outlines the requirements for waterworks assessments continues to be provided on the internet: (http://www.se.gov.sk.ca/environment/protection/water/Binder_TofC.htm). By the end of the reporting period, a total of 197 waterworks system assessments had either been initiated or completed.

- Semi-public water systems are regulated through *The Health Hazard Regulations*. Compliance with these regulations is monitored through inspections of the semi-public water systems, ensuring that the operators are routinely sampling the water supply and reviewing water quality test results. A data management system will be implemented and used to store inspection and water quality information related to the health regulated semi-public water supplies. [2004-05 planned result – Health and Regional Health Authorities].

  The majority of the public water systems that are regulated by *The Health Hazard Regulations* provide water to facilities that operate only during the summer months (i.e. campgrounds, tourist accommodations). Health Region Public Health Inspectors have been visiting these facilities to inspect and determine compliance with the regulations. Health Regions are currently entering inspection information into the Public Health Inspector Information Management System – Water Component, which was implemented earlier in 2004.

- Frequent and rigorous inspections of waterworks are to continue across the province, including two inspections at each surface water and priority groundwater waterworks and one inspection at every other regulated waterworks. Supplemental education, prevention and compliance activities will be conducted to ensure waterworks meet operational and treatment requirements. Inspection protocols will be kept current with developments in water treatment technologies. [2004-05 planned result – Environment]

  Saskatchewan Environment continues to implement its waterworks inspection protocol according to the above noted frequency. During the reporting period, 792 waterworks inspections were completed. Saskatchewan Environment continues to update components of the Drinking Water Information Binder and SaskH2O website to help keep owners and operators current with operational requirements. Inspection reports highlight any operational aspects that may be lacking and establish timelines for compliance. Saskatchewan Environment plans to post inspection results to the internet in 2005-06 to increase transparency and public trust in drinking water supplies and the associated regulatory processes.

  Waterworks inspections are carried out by the Environmental Project Officers. During a three-year cycle, at least one inspection will be unannounced. Table 5 summarizes the findings of key elements for inspections conducted during the 2004-05 fiscal year.

Table 5: Waterworks Inspection Finding Summary.

Inspection Element	Non-Compliant	N/A or No Response	Compliant
Disinfection continuous at plant	14	35	743
Disinfection Free dhlorine > or = 0.1 mg/L leaving the plant	93	63	636
monitoring daily chlorine	93	19	680
Reservoirs in good repair	22	73	697
Waste treatment plant in clean and orderly condition	24	48	720
A total chlorine residual not <0.5 mg/l or a free chlorine residual not <0.1 mg/l in the distribution system	91	29	672
Bacteriological testing after completion, alteration, extension or repair	30	44	718
Reporting of chlorine upsets	75	31	686
Record keeping	81	30	681

Source: Saskatchewan Environment – Environmental Management System

- Implement requirements for waterworks upset reporting (for incidents such as equipment failures or operational problems affecting water quality) and reporting of low disinfectant levels to provide for greater consumer safety. Guidelines and educational information will be provided to inform waterworks owners of health concerns, needs and compliance timelines for upset reporting. Department staff will respond and give advice in respect to upset reports to ensure protection of drinking water and treatment systems. [2004-05 planned result – Environment]

  A new protocol for upset reporting and follow-up developed in 2003-04 is now used by department staff. A fact sheet on the Implications and Requirements for Upset Reporting was distributed to waterworks owners as a supplement to the Drinking Water Information Binder. Waterworks owners and operators continue to be advised of upset reporting requirements during inspections. Approximately 48 upsets at waterworks were reported and addressed during 2004-05 due to problems like failure of disinfection or filtration equipment, breakages in water lines/depressurization, flooding or other failures. These upsets resulted in the issuance of Precautionary Drinking Water Advisories (PDWAs) or Emergency Boil Water Orders (EBWOs).

- The Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment will be updated as necessary to ensure that incidents or concerns are addressed in a manner consistent with best practices or new developments. [2004-05 planned result – Environment]

  The positive bacteriological follow-up protocol received further updating in spring 2004 to incorporate communication protocols developed by Saskatchewan Environment and Saskatchewan Health. Minor technical corrections were performed in fall 2004. Further updating was undertaken later in the reporting period to incorporate changes to analytical methods used by laboratories, advice for dealing with protozoan contamination incidents and follow-up at hygienic waterworks.

  The Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment provides for the issuance of PDWAs by Saskatchewan Environment when there is a concern that problems (due to microbial or chemical contamination) may exist. EBWOs are issued by Health Region officials to deal with confirmed public health threats such as microbial contamination of drinking water. Tables 6 and 7 outline statistics for PDWAs and EBWOs issued for Saskatchewan Environment and Health Region regulated waterworks during the 2004-05 fiscal year.

Table 7: EBWO/PDWA Statistics for 2004-05 – Health Region Regulated Waterworks.

Time	EBWO	PDWA
In effect prior to reporting period	15	14
Added during the reporting period	13	23
In effect at end of reporting period	11	16

Source: Information provided by the Health Regions in Saskatchewan

Tables 8 and 9 provide information regarding the reasons for PDWAs and EBWOs issued during the 2004-05 fiscal year for waterworks regulated by Saskatchewan Environment. Further information on the nature of a PDWA and EBWO issued during 2004-05 by Saskatchewan Environment is available from the department.

Table 8: Reason for Issuing PDWAs during 2004-05 – Environment Regulated Waterworks.

Reason for issuance of PDWA	Number
Startup of waterworks	23
Inadequate chlorine residual	3
Chlorination pump failure	5
Pressurization/depressurization of system	15
Flooding of water reservoir	2
Positive bacti results	4
Inadequate treatment	2
Insufficient bacti samples & high turbidity	2
High turbidity	13
Break-in to waterworks	1
Cross connection suspected	1
Equipment or raw water line failure	2
Supply unsafe water-miscellaneous	4
Total	**77**

Source: Saskatchewan Environment – Environmental Management System

Table 9: Reason for Issuing EBWOs and PDWAs during 2004-05 – Health Region Regulated Waterworks.

Reasons for issuance of EBWO during 2004-05	Number
Positive E. coli results	12
Positive fecal coliform results	1
Lack of minimum treatment	0
Miscellaneous-unsafe drinking water	0
Total	**13**
Reason for issuance of PDWA	**Number**
Supply unsafe water-miscellaneous	6
Positive BacT – lack of Iminimum treatment combined	1
Lack of minimum treatment, high turbidity combined	2
Positive bacti results	8
Lack of minimum treatment	4
High turbidity	2
Total	**23**

Source: Information provided by the Health Regions in Saskatchewan.

- A compliance and enforcement framework was developed and will be implemented to attain compliance with drinking water regulatory requirements. Department technical staff will continue to receive enforcement training. The role of enforcement staff for compliance activities has been defined and will continue to be implemented. [2004-05 planned result – Environment]

  Saskatchewan Environment's Drinking Water and Wastewater Enforcement Protocol provides direction and guidance for Environmental Project Officers to ensure effective and uniform enforcement and compliance practices are followed in dealing with non-compliance for drinking water and wastewater related violations. Ensuring public health, safety and protection of the environment is the overall purpose. The enforcement protocol requires that compliance be obtained through the use of public education and prevention while enforcement is a tool of last resort. Compliance related actions may also be

applied when a non-compliance issue is causing, or may cause a significant risk to public health and safety, or the environment. During 2004-05, all compliance and enforcement protocols were reviewed and revised to improve where necessary and update to recognize the revised organization of Saskatchewan Environment and reporting with respect to drinking water management.

During 2004-05, implementation of the enforcement and compliance protocol continued and was integral in gaining compliance in problematic or difficult situations. Sixty-two written warnings were issued for waterworks and sewage works related infractions. As well, four waterworks protection orders and one sewage works protection order have been issued to non-compliant parties, and one administrative penalty for failing to submit bacteriological samples was assessed. In addition, 10 charges have been laid for waterworks related infractions. One individual was convicted, two charges were withdrawn, and seven charges are presently before the courts awaiting judgment. The nature of water and wastewater related infractions encountered during the reporting period are summarized in Table 10.

Verbal Warnings
Verbal warnings are issued for minor offences encountered during inspection duties. Verbal warnings are documented on inspection forms used by inspection staff.

Written Warnings
Written warnings consist of letters of non-compliance and notices of violation. Written warnings are issued for non-compliance detected during inspections or when follow-up requirements identified through previous inspections or correspondence were not complied with. During 2004-05, 62 written warnings were issued to waterworks or sewage works owners. There were 80 infractions documented on the written warnings. Table 10 provides a breakdown of the infraction details.

Typically, the waterworks owners address all verbal and written warnings in a short time period. Department staff follow-up by repeat contacts or inspections to ensure warnings are addressed and protection of water quality is assured.

Waterworks Protection Orders
Waterworks Protection Orders are issued to a person responsible for a waterworks, if in the opinion of the Minister of Saskatchewan Environment, it is necessary to do so to protect human health or the environment. Based on ongoing implementation of Saskatchewan Environment's Enforcement and Compliance Framework, the department will always pursue prosecution when a Waterworks Protection Order is not complied with. Four Waterworks Protection Orders were issued during the reporting period. Two orders were issued to waterworks owners for failing to meet minimum chlorine residual requirements. One order was issued to a waterworks owner for failing to cause continuous chlorination and one order was issued in order to decommission an unsafe well. Table 10 provides a breakdown of infraction details. Saskatchewan Environment follows up on all waterworks protection orders to ensure that problems are ultimately resolved.

Sewage Works Protection Orders
Sewage Works Protection Orders are issued to a person responsible for a sewage works, if in the opinion of the Minister of Saskatchewan Environment, it is necessary to do so to protect human health or the environment. Based on ongoing implementation of Saskatchewan Environment's Enforcement and Compliance Framework, the department will always pursue prosecution when a Sewage Works Protection Order is not complied with. One order was issued during the reporting period to an owner that was required to construct a new lagoon system.

Administrative Penalties
Administrative penalties are not criminal charges, but are designed to be a deterrent when a contravention of specific sections of legislation has been committed. Administrative penalties can only be assessed against permittees and only for specific offences of *The Environmental Management and Protection Act* or *The Water Regulations*. One administrative penalty was assessed to a waterworks owner for failing to submit samples that were a requirement of the operating permit.

Prosecutions
Ten charges were laid during 2004-05 for waterworks related infractions pursuant to *The Environmental Management and Protection Act* or *The Water Regulations, 2002*. Prosecution will only be used when prevention, education and other enforcement tools do not compel the violator to comply with legislation. Table 10 provides a breakdown of infraction details.

Convictions
There was one conviction for waterworks related infractions that involved the falsification of records at a waterworks facility during the 2004–05 fiscal year. Two charges were withdrawn by the crown and seven charges are presently before the courts. Refer to Table 10.

- Education, prevention and enforcement activities and inspections in accordance with a new developed inspection protocol will be stepped up as needed to ensure wastewater works meet requirements. [2004-05 planned result – Environment]

  Saskatchewan Environment's wastewater inspection protocol is now in effect with a target of one inspection at each wastewater works each year. Over the 2004-05 reporting period, 528 inspections at wastewater works were completed. New fact sheets and guides such as Two Cell Lagoon Operation and Maintenance Guidelines and Sewage Sludge Application Guidelines which apply to sewage works construction and operation were established to aid in education and prevention efforts. Saskatchewan Environment also undertook enforcement activities in relation to wastewater works as shown in Table 10.

Table 10: Enforcement and compliance activities-Drinking Water/Wastewater 2004-05.

Infraction	Administrative Penalties	Written Warning Infractions	Ministerial Orders issued	Charges Laid	Convictions
Fail to report upset condition at waterworks		8			
Unsealed cover on reservoir		1			
Fail to have water meter		1		1	
Fail to report upset condition at sewage works		3			
Improper record keeping		11			
Fail to have a quality assurance/quality control policy		20			
Fail to do daily testing		10			
Chlorine residuals below minimums		5	2		
Fail to cause continuous chlorination			1	2	
No annual notice supplied to consumers		6			
Non-compliant sample submission	1	8			
Contravene conditions of operating permit		2		1	
Improper sewage lagoons		2	1		
Unsafe well		2	1		
Discharge unapproved substance into waterworks		1			
Fail to comply with waterworks protection order				2	
Supply false information to the department				4	1
Total	1	80	5	*10	1

* Two charges withdrawn by crown, seven charges still before courts.

Source: Saskatchewan Environment – Resource Intelligence Program database

Measurement Results

Number of accredited drinking water testing laboratories

March 2002	March 2003	March 2004	March 2005	Annual Change
1	2	4	6	↑ 2

Source: Standards Council of Canada web (http://www.scc.ca/en/news_events/notices/lab.shtml)

Laboratory accreditation indicates that the laboratory has a quality system that is documented, communicated, understood, implemented and incorporates adequate review, audit and internal quality control and ensures accurate analytical results. Laboratory accreditation was selected as a performance measure to help gauge results in ensuring safe drinking water for Saskatchewan residents. As of March 31, 2005, six laboratories located in Saskatchewan that perform analysis of drinking water samples have been accredited by the Standards Council of Canada in accordance with regulatory requirements. This represents an increase of two laboratories achieving accreditation since March 31, 2004 when four water laboratories were accredited. Accredited laboratories include: Saskatchewan Health – Provincial Laboratory, Saskatchewan Research Council, Enviro-test Laboratories, BDS Laboratories, the City of Saskatoon Laboratory and the Buffalo Pound Filtration Plant laboratory. Only one other water laboratory exists in Saskatchewan. This facility does not serve waterworks regulated by Saskatchewan Environment.

Objective 2: Professional regulatory staff have access to the tools necessary to ensure compliance

Provision of safe drinking water is reliant in part on the training and tools that regulatory staff can access. The tools take the form of working agreements, computerized information systems as well as examples, guidelines and templates needed to deliver programming. Staff qualifications must also be assured and kept current with new or evolving water management processes. Collectively, these tools help to ensure that drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment.

During 2004-05, significant progress was made in advancing this objective. The water information system called the Environmental Management System (SEEMS) was enhanced and Saskatchewan Environment staff received training on its use. The same information system is being used in Alberta and Manitoba to help monitor their drinking water quality. Integration between Saskatchewan Environment and Medical Health Officers was strengthened by ongoing information exchange meetings and by protocol revisions throughout the 2004-05 fiscal year.

Key Results

The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- To strengthen integration between regulators and complete protocols on communicable disease response and information exchange on provincially regulated systems, educational water quality workshops will be held for officials (Medical Health Officers and Public Health Inspectors). [2004-05 planned result – Health and Environment]

  Saskatchewan Environment program delivery staff and managers held meetings with Health Region representatives (Public Health Inspectors and Medical Health Officers) during the fiscal year to discuss drinking water related programming, progress and waterworks specific concerns in their particular service regions. Saskatchewan Environment staff, Saskatchewan Health officials and Medical Health Officers continue to meet on a regular annual basis at which time items are reviewed such as the bacteriological follow-up protocol and steps for implementation of hygienic systems. Collectively, Saskatchewan Environment and Saskatchewan Health continue to coordinate activities for the Safe Drinking Water Strategy with other participating departments through a Policy and Programs Subcommittee.

- Emergency response protocol templates have been developed and will be provided to aid waterworks owners and operators prepare and respond to a wide range of water related emergency situations. Waterworks owners

will be informed of emergency response concerns and offered specialized workshops on emergency planning. [2004-05 planned result – Environment]

Saskatchewan Environment distributed background material and planning templates to all of its regulated clients and will continue to do so for any newly regulated works. Saskatchewan Environment delivered one comprehensive waterworks emergency planning workshop in the 2004-05 fiscal year, and will continue to offer this course to waterworks operators/owners on request. As of March 31, 2005, compliance levels were approximately 96 per cent with requirements for waterworks owners to submit emergency response plans as part of Quality Assurance/Quality Control policies required by the department. Saskatchewan Environment will continue to advance compliance efforts to ensure owners complete emergency response planning. Copies of emergency response planning templates and related educational information are available at: http://www.SaskH2O.ca/foroperators

- In order to maintain inspector qualification for regional staff who deliver water programming, all Environmental Project Officers will be required to obtain 0.5 Continuing Education Units in training in the current water and wastewater field. Annual dedicated in-house training and support to attend external training opportunities will be provided to staff to aid in maintaining qualifications. [2004-05 planned result – Environment]

  Saskatchewan Environment continues to implement its training protocol for staff inspecting waterworks. Staff have achieved the required Continuing Education Units as required for ongoing qualification for the previous fiscal year. An annual in-house conference for the department's Environmental Project Officers was held September 2004. Training opportunities continued to be offered such as database use instruction, a legal sampling course, a waterworks/sewage works protection order workshop and attendance at Saskatchewan Water and Wastewater Association meetings and American Water and Wastewater Association video conferences.

- Ongoing enhancement of the Environmental Management System (SEEMS) will make certain important historic data for regulated drinking water systems, municipal and industrial wastewaters and surface water quality is entered into the system and available for use by provincial regulators and scientists. Other potential risks to drinking water sources such as landfills, hazardous substance storage facilities and spills of contaminants will be incorporated into SEEMS to assure these environmental information sources are integrated and available to drinking water managers and regulators. [2004-05 planned result – Environment]

  With the implementation of SEEMS, Environmental Project Officers have transitioned from a "paper and file" record-keeping model to a modern information system that enables immediate checking of waterworks performance and potential environmental risk to water quality. SEEMS drinking water information is also fed into the public website *SaskH2O.ca*, launched in June 2003, where citizens are able to check on current and historic water quality in their community. As of the end of March 2005 the website has had an average of 76 visitors per day with an average stay on the website of eight minutes. A total of 55,200 visits have been recorded over this 21-month period.

Measurement Results
A measurement tool was under development

Goal 3 - High quality source waters are protected now and into the future

Objective 1: Risks to source water quality are known

Protection of source water quality is a component of the provision of safe drinking water. Identification of risks to source water quality is the first step in developing actions and strategies to protect them and minimize the cost to treat drinking water.

During 2004-05, significant progress was made in advancing this objective. Watershed planning continued in seven watersheds in the province, with significant participation from area residents and water users. Saskatchewan Environment conducted ongoing monitoring of surface waters at 21 primary network monitoring sites across the province. Initial review of the Surface Water Quality Objectives was completed. There were 528 inspections of sewage works performed, which helped to identify and resolve risks to source waters.

Key Results
The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- The risks of wastewater effluent, intensive livestock operations, resort villages, recreational subdivisions, forestry activity, industrial activity and other developments will be determined in order to develop a well understood set of risks to source water quality. Development of source water protection plans will be initiated through the formation of advisory and technical committees in the Lower Souris, Upper Assiniboine, Moose Jaw, Upper Qu'Appelle, South Saskatchewan and North Saskatchewan watersheds and the Yorkton aquifer as a means to identify risks to watersheds. [2004-05 planned results – Saskatchewan Watershed Authority]

  Advisory and technical committees have continued working to develop watershed plans for the identified watersheds. Work is continuing on identification of risks to source water quality.

  Saskatchewan Agriculture and Food requires intensive livestock operations to develop waste storage and management plans that will not contaminate water resources. In 2004-05, 29 approvals were issued for intensive beef, dairy, pork and chicken operations. Some of the approvals were for expansions and/or modifications to existing operations. A 2003 Surface Water Quality Monitoring Report For Intensive Livestock Operations was completed. The report summarizes the water quality data collected by the department and the report is available at http://www.agr.gov.sk.ca/DOCS/livestock/surfaceWaterQuality.pdf. Saskatchewan Agriculture and Food and the Saskatchewan Watershed Authority coordinated development and publication of the Stewardship and Economics of Cattle Wintering Sites for beef producers.

- A groundwater mapping program to allow identification of risks to water quantity and quality will be advanced. Further work to delineate ground water resources in agricultural Saskatchewan will begin with the Piapot groundwater resource assessment pilot project. One new groundwater resource assessment will be initiated and completed while supporting ongoing groundwater mapping activities. [2004-05 planned results – Saskatchewan Watershed Authority]

  Final draft reports for the Piapot and Meadow Lake groundwater resource assessment pilot projects were completed. A proposal for an expanded program was submitted to the Canada-Saskatchewan Water Supply Expansion Program. The proposal, which includes completion of the Cypress Lake (72F) and Prelate (72K) 1:250,000 NTS map sheets, was accepted and will be completed by March 31, 2006. This project will involve updating of current groundwater resource maps as well as a groundwater resource assessment.

- Locations where water quality data and hydrometric station data are collected will be identified and the information will be used to assess the potential for integration of monitoring. Staff training to collect both hydrometric and water quality data will begin. Information on water supplies will be provided to encourage large water use industries to locate where reliable water supplies are available. [2004-05 planned result – Saskatchewan Watershed Authority]

  Potential for integration was assessed and the Authority decided to establish a pilot project in 2005 along the Qu'Appelle River. This pilot will involve the collection of real time flow and water quality data at three sites.

This information will then be used in the development of in-stream flow needs and examining the feasibility of expanding this program to other sites.

- A water-use monitoring program will be developed and implemented to ensure actual municipal, industrial and agricultural use is known and is within the allocated amount. [2004-05 planned result – Saskatchewan Watershed Authority]

  A water use monitoring policy was developed and work initiated to update the Authority's surface water database to determine the amount of water being used compared to the amount allocated. A number of project operators were contacted and field inspections completed to determine if approved projects are still operating. All new water use approvals issued by the Authority include special conditions, which require the project operators to maintain a record of actual water use and report the use to the Authority when requested.

- Monitoring of surface waters has been reinitiated to determine quality trends and impacts and will be helpful in guiding protection efforts. A new water quality monitoring program will be developed for key indicators of watershed and aquifer health. Surface Water Quality Objectives will be updated to reflect current conditions and scientific information. [2004-05 planned result – Environment and Saskatchewan Watershed Authority]

  Saskatchewan Environment conducted ongoing monitoring of surface waters at 21 primary network monitoring sites across the province during 2004-05. Initial review of the Surface Water Quality Objectives was completed by March 31, 2005. Review included an examination of similar reference documents such as the recently prepared Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines, criteria from other provinces and the United States Environmental Protection Agency. Saskatchewan Environment is considering recommending the direct adoption of the generic CCME guidelines for protection of aquatic life, livestock watering, crop irrigation and recreational use for all watersheds in the province. Consultation and publishing of the revised objectives is planned for the 2005-06 fiscal year.

- Inspections at sewage treatment facilities in the province will be conducted to identify which systems represent a risk to source water quality. It is expected that new permits for all of the 625 wastewater works will be reissued. Each wastewater works will be inspected once per year in the future. [2004-05 planned result – Environment]

  Saskatchewan Environment conducted 528 inspections at wastewater works across the province during the 2004-05 reporting period. The department uses the comprehensive inspection results to advance wastewater management in the province and reduce impacts to source water. Information gained from inspections will also be valuable to prepare for implementation of a new Canada-wide Strategy for Municipal Wastewater Effluent in the future. Permits were reissued for 161 sewage works during the reporting period.

- Review of effluent quality information, industrial effluent permits and permit conditions will continue as a means to identify and manage threats to source water quality. [2004-05 planned result – Environment]

  Saskatchewan Environment continued to review and revise industrial effluent permits and track compliance with effluent quality requirements on an on-going basis during the 2004-05 reporting period. Water and wastewater permitting has been integrated with other aspects of industrial permitting, however the requirements remain consistent with other water and wastewater permitted activities such as municipal systems. This is an ongoing function of the department and also serves to further source water protection goals of the Strategy and environmental protection goals of the department.

- Intensive Livestock Operation (ILO) application review will continue as a means to identify and manage threats to source water quality. Work with local watershed

associations to identify any threats to source water quality from existing ILOs will continue. [2004-05 planned result – Environment]

As part of operational practices and the department's role, Saskatchewan Environment continues to provide comment on ILOs permitting as governed by Saskatchewan Agriculture and Food on an on-going basis. The department also provides technical advice to local organizations performing water quality monitoring in proximity to ILOs.

- An overall review and assessment of municipal wastewater systems effluent quality to identify discharge impacts and risks to source water quality will be undertaken based on inspection information and the results of effluent sample analysis. [2004-05 planned result – Environment]
  During 2004-05, information gained from comprehensive wastewater works inspections was employed in the development of numerical risk assessments. These assessments are valuable in identifying potential impacts to source water and as information to initiate correction of these problems. Saskatchewan Environment will continue to focus greater efforts in resolving concerns associated with wastewater systems in the future as a means to protect source waters.

Measurement Results
Number of sewage effluent discharges that represent a risk to source waters

March 2004	March 2005	Annual Change
93	93	0*

Source: Saskatchewan Environment – Environmental Management System
* The department has initiated preventative and compliance actions to resolve problems or advance progress at six sewage works in the province during 2004-05

As of March 31, 2005, approximately 93 wastewater systems have been identified as having discharge that may reach a surface water body under certain conditions. Saskatchewan Environment has initiated educational efforts to reduce the risks these systems may present to source waters. The department also increased preventative and compliance actions to resolve problems or advance progress at six sewage works in the province during 2004-05. Resolution of sewage works capacity or treatment capability issues typically involves significant planning, investment and construction. Therefore, it can be expected that reductions in the number of works which represent a risk to source waters will be a time consuming process. The number of sewage effluent discharges that represent a risk to source waters is a direct indication of the potential for source water contamination due to poor wastewater treatment. This measure was selected as a performance measure, since it is the most direct measure of the number of potential contamination point sources. This measure was established during 2003-04 and most significant follow-up actions began in 2004-05. Further work to resolve problematic wastewater systems is planned for 2005-06 and beyond.

Objective 2: Watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized

Protection of source waters can reduce the costs of water treatment and improve water quality while helping to maintain other water uses. Sound water resource management means that the processes, which break down wastes, must be protected as must land use practices which can protect water quality from contamination. Actions in terms of both organizational structure and watershed/water management are improving source water protection in the province.

During 2004-05, significant progress was made in advancing this objective. A review of legislation administered by the Saskatchewan Watershed Authority was completed and plans are in place to further modernize the legislation. Saskatchewan Environment continues to serve as "Champion" of a federal-provincial initiative to improve management of municipal wastewater. Water source protection plans are now underway in six watersheds and one aquifer. In total, 20 committees with close to 400 representatives are now actively supporting the development of watershed or aquifer plans. Environmental farm planning, as part of the Federal/Provincial

Agriculture Policy Framework is now being implemented to identify environmental risks, including risks to water resources.

Key Results
The key actions originally planned for 2004-05 are shown below, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- An internal review of Saskatchewan Watershed Authority's five Acts and associated regulations will be completed. This review is intended to determine what, if any, amendments are required to meet the Authority's mandate and prepare drafting instructions for required amendments. [2004-05 planned result – Saskatchewan Watershed Authority]

  Review of Saskatchewan Watershed Authority's legislation was completed and a new Saskatchewan Watershed Authority Act, which combined and modernized the *Saskatchewan Watershed Authority Act* and the *Ground Water Conservation Act*, was drafted for submission to the spring legislative session.

- Work to lead the development of a Canada-wide Strategy for the management of Municipal Wastewater Effluent (MWWE) will continue. This strategy is being developed through the auspices of the CCME as a means to forward MWWE management in a consistent manner across Canada. [2004-05 planned result – Environment]

  Saskatchewan Environment now serves as champion of the CCME – Development Committee, which is charged with development of a Canada-Wide Strategy for Municipal Wastewater Effluents. This project is intended to harmonize requirements for improved management of wastewater effluents, particularly with respect to ammonia and residual chlorine based disinfectants. Of particular importance is the development of an environmental risk management model to better deal with all aspects of municipal wastewater management as a means to protect source waters for a variety of uses. Working groups have been established to deal with developmental elements and consultation has been conducted in 2004-05.

- Initial work on the development of watershed plans, which has begun for seven priority areas, will continue. The development of watershed and aquifer management plans will be facilitated and involve participation and support from stakeholders. [2004-05 planned result – Saskatchewan Watershed Authority]

  Development of water source protection plans continued in six watersheds and one aquifer. The planning committees are composed of representatives from municipal governments and First Nations, water entities established by legislation, and stewardship, producer, industry and other interest groups. Recognizing the geographic size and complexity of the watersheds, from two to four advisory committees are operating in each of the watersheds. In total, 20 committees with close to 400 representatives are now actively supporting the development of watershed or aquifer plans.

  A series of technical committees are also working to support plan development. Composed of provincial and federal governments and private experts, the technical committees are tasked with the responsibility of bringing information to the planning process, assessing options and assisting in the development of recommendations. The technical committees have also been meeting regularly and to date have played a critical role in the development of the background reports which are nearing completion in many of the planning areas.

  Saskatchewan Agriculture and Food continues to work with the Saskatchewan Watershed Authority as members of Watershed Planning Technical Committees working on the development of Watershed Planning to protect watersheds and minimize potential impacts to water resources.

  The Minister of Saskatchewan Agriculture and Food previously established the Spirit Creek Watershed Monitoring Committee to provide independent monitoring of water resources in the Spirit Creek Watershed basin. The committee, with continued technical

assistance from Saskatchewan Agriculture and Food, Saskatchewan Watershed Authority and Saskatchewan Environment, has established a water monitoring program to ensure large hog barns in the Rama area of the basin are not impacting water resources. The committee also initiated a soils monitoring project to evaluate the use of manure to fertilize crop production in the area and to determine if soil nutrient loading is occurring in the root zone and/or below the root zone. The activities of the committee are reported at the Spirit Creek Watershed Monitoring Committee website at http://www.spiritcreek.ca

- Comprehensive management plans will be developed and a land management system will be created for Saskatchewan Watershed Authority land and to secure critical areas of habitat. This will be accomplished by working with landowners and partners to reduce erosion from channels, which run in spring months and stream bank areas in highly cultivated landscapes and by securing voluntary stewardship agreements with 68 targeted landowners to conserve 5,000 hectares of native prairie. In addition, land management plans for the Rafferty/Alameda area, along the Carrot River and along the Qu'Appelle River, will be developed and implemented. [2004-05 planned result – Saskatchewan Watershed Authority]

  Land management activities are being implemented on Authority lands in the Fairy Hill Marsh, Quill Lake, Chaplin Lake and Rafferty/Alameda areas. Habitat evaluations are also being conducted on Authority lands in Rafferty/Alameda and Quill Lakes areas. Additional land management activities are being implemented on private lands in the Missouri Coteau, Lower Souris and Frenchman River watersheds.

  The Authority has secured 22 Voluntary Stewardship Agreements to conserve 711 hectares of native prairie with additional Voluntary Stewardship Agreements pending.

  Saskatchewan Agriculture and Food continues to work with the Saskatchewan Watershed Authority on several riparian enhancement and or protection projects and in the publication of "beneficial" management practices to keep riparian areas healthy and functional. The two agencies are active partners in the pilot Agro-Equivalent Environmental Farm Plan situated in the Lower Souris River Watershed. This group plan will be the first of its kind in Canada and focuses on source water protection.

  Saskatchewan Agriculture and Food continues to provide funding through the Agriculture Development Fund for research and development of manure management technologies that add value to manure and protect soil, water and air. Long-term research and demonstration have established the application considerations for manure application for both liquid and solid manure. These sites have shown that with responsible and appropriate application that manure is an excellent fertilizer.

- Municipalities and stakeholders will be consulted on a new planning act that will include requiring municipal collaboration to implement land use bylaws to protect water sources. The requirements for municipal bylaws will be coordinated with Saskatchewan Watershed Authority's staged implementation of protection of watersheds. This will ensure the municipalities have bylaws in place that meet the standards required to protect the watersheds. Saskatchewan Government Relations will work towards establishing a new planning act in 2005. [2004-05 planned result – Government Relations]

  Saskatchewan Government Relations has worked with Saskatchewan Watershed Authority on all of the current watershed plans, including attending stakeholder meetings on the protection of watersheds and the role of municipalities. Saskatchewan Government Relations reviewed information on approaches by other provinces and territories regarding municipal protection of watersheds. *The Planning and Development Act, 1983* is being renewed in two phases. Phase one renewal of the Act provides cities with planning autonomy and flexibility that match their capacity and streamlines public notice requirements and planning processes. Phase two of the renewal will include

requiring municipalities to establish land use plans and bylaws for the protection of drinking water sources. Municipalities will be encouraged to adopt bylaws by 2007 to coordinate with the Saskatchewan Watershed Authority's implementation of watershed plans. Consultations on the legislation are to take place in 2005-06.

Other actions to enhance watershed protection and water use beyond the actions planned as part of the Safe Drinking Water Strategy include:

A Strategic Plan for Geographic Information Systems (GIS) at Saskatchewan Watershed Authority was developed and is an important support to effective water quality monitoring and reporting. The plan outlines a future vision for GIS within Saskatchewan Watershed Authority to improve decision-making at all levels in the most effective, efficient and coordinated manner. It will ensure Saskatchewan Watershed Authority staff are well placed (internally and externally) to match up data and information to those individuals needing it now and in the future. Implementation of the plan is scheduled for 2005.

Authority GIS and Operations staff worked with Saskatchewan Environment GIS staff to create spatially explicit GIS mapping layers representing Reservoir Development Areas and Authority owned land parcels. These datasets have been incorporated into Saskatchewan Environment's Designated Areas data compilation/mapping project, which will enable online mapping and/or online distribution. This will greatly improve access to this information for other government departments, private industry and the general public.

Saskatchewan Agriculture and Food is in the process of implementing "environmental farm planning" as part of the Federal/Provincial Agriculture Policy Framework. Environmental Farm Plans (EFP) will help farmers to identify environmental risks, including risks to water resources. The framework also provides some funding for the implementation of practices that reduce or minimize some of the risks identified. By March of 2005, the Provincial Council of Agriculture Development and Diversification (ADD) Boards (PCAB – delivery agency for Environmental Farm Plans in Saskatchewan) had delivered over 100 workshops to producers in the province with over 1,000 farm units attending. Review and endorsement of more than 300 completed farm plans is expected by late May 2005, after which farmers will be able to access funding for implementation of "beneficial management practices" on their farms.

Saskatchewan Agriculture and Food administers *The Irrigation Act*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability. Technical assistance is provided to Saskatchewan Environment on effluent disposal via land application to help ensure a high level of environmental protection and ongoing agricultural productivity.

Measurement Results

Water Quality Index (WQI) ratings for watersheds within the province

Waterbody	Water Quality Index Rating (2003-04)
Qu'Appelle River*	Fair to good
North Saskatchewan River*	Fair to excellent
South Saskatchewan River*	Good to excellent
Moose Jaw River**	Poor to fair
Souris River at 18 Highway (1971-1982)	Poor to good
Assiniboine River at Highway 8 South (1972-2002)	Poor to excellent
Assiniboine River at Old Highway 8 (1985-2002)	Marginal to good
Churchill River at Otter Rapids (1972-1982)	Good to excellent

*15-year average. ** 12-year average
Source: Saskatchewan Environment and Saskatchewan Watershed Authority monitoring results

The revised Saskatchewan Water Quality Index (WQI) was applied to sites across four major waterbodies by the end of the 2003-04 fiscal year

(South Saskatchewan, North Saskatchewan, Qu'Appelle and Moose Jaw rivers). To generate the WQI ratings, certain data criteria need to be met. Restructuring of existing databases and transition over to the new Saskatchewan Environment Environmental Management System database has resulted in an inability to calculate the WQI as planned based on 2004-05 data. To resolve and streamline this difficulty in the future, an automated means of having the WQI calculations is being developed in 2005-06. The WQI is a good measure of overall trends in water quality that may not otherwise be apparent through individual water quality test results. Water quality from surface water sources tends to change over seasons and may change over successive years as a result of pollution or other water management practices.

Number of municipalities with bylaws in place to protect their drinking water supplies

This measure was established to gauge compliance with legislative amendments planned for 2007 that would require municipalities to put in place bylaws to protect their drinking water supplies. Since the measure is aimed at a future event, we are unable to report results for the 2004-05 fiscal year and provide trend information for this measure. As of December 2004, 21 per cent of the urban and rural municipalities have some form of water management policy contained in their community planning bylaws (11 per cent with mandatory provisions and 10 per cent with permissive or discretionary provisions). (Source: Saskatchewan Government Relations manual filing system on municipal bylaws).

These values will serve as the baseline for reporting future year results. The number of municipalities with bylaws in place to protect their drinking water supplies is a direct indication of the level of municipal requirements in place to help protect source water quality.

Goal 4 – Citizens and consumers trust and value their drinking water and the operations which produce it

Objective 1: Consumers value quality water and are willing to pay for it

Saskatchewan residents are not always aware of the cost of providing safe drinking water. Protection of source waters, the ability to treat source water and ensure sustainable supplies is dependant on consumers that recognize the value of water and are willing to pay for it at present and in the future.

Polling results show that progress has been made in advancing public recognition of the value of water or willingness to pay for it. Polling information results collected in March 2005 show 68 per cent of respondents indicate they are willing to pay more for their drinking water, an increase of 6.9 per cent since the previous poll in May 2003.

Key Results
The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- Delivery of a public education campaign about source water issues and implications for all water utilization. A public education strategy will be implemented, in support of the Strategy and in co-operation with other departments, through preparation of feature articles for newspapers and partner and trade magazines and providing information on Saskatchewan Watershed Authority's website. The Prairie Update newsletter will be published, as will feature articles for weekly newspapers, partner and trade magazines. Participation in major tradeshows/educational conferences will continue. Information will be provided through a comprehensive website. Delivery of educational programs (Project Wet, Project Wild, Climate Change, etc.) directly linked to the Saskatchewan curricula will continue by offering workshops to teachers in the K-12 system and students in the Faculty of Education at the University of Regina and the

University of Saskatchewan. [2004-05 planned result – Environment, Saskatchewan Watershed Authority]

Saskatchewan Environment Activities:

- Through the leadership of Saskatchewan Environment, good progress continues on development and implementation of the SaskH2O website, which went on-line as of June 2003. Members of the public can now access up-to-date drinking water quality information. As of March 24, 2005, there have been 55,200 website visits, 20,500 visitors with an average of approximately 76 visits per day.
- Several updates to the Drinking Water Information Binder, which includes fact sheets, templates and requirements related to protection and management of drinking water and wastewater under *The Water Regulations, 2002* and *The Environmental Management and Protection Act 2002*, were provided to waterworks and sewage works operators and owners previously. Updates were also placed on the Sask2O website.
- Saskatchewan Environment delivered a northern water workshop in April 2004 and provided a regulatory related workshop in conjunction with the Saskatchewan Water and Wastewater Association in June 2004. In September 2004, the Drinking Water Quality Section supported a water workshop for First Nations. The department also participated in the February SUMA convention and participated in SARM Risk management workshops in March 2005 giving presentations on drinking water.
- A month long bookmark campaign was completed during the 2004-05 fiscal year. Each book taken out at public libraries across the province during that month contained a bookmark outlining the need for water conservation and protection. The SaskH20 website was also advertised. Extra bookmarks were also produced at the same time for distribution by department officials at appropriate occasions.
- Saskatchewan Environment completed a set of brochures on water conservation, cost and value of water during 2004-05. These brochures will be provided to Saskatchewan Environment's regulated water clients, via the internet, etc. The information included in these brochures will also be employed at workshops, presentations and in meetings with waterworks owners and councils.

Saskatchewan Watershed Authority Activities:
The Watershed Authority delivered on the public education strategy by:

- Publishing four issues of Prairie Update;
- Placed numerous articles on best management practices and watershed planning in media;
- Increasing information content on the Saskatchewan Watershed Authority website;
- Delivering education programs (Project Wet, Project Wild, Climate Change) directly linked to the Saskatchewan curricula, by offering workshops to teachers in the K-12 system and students in the faculty of education at the University of Regina and the University of Saskatchewan;
- Conference presentations including participating as a key part of the organization team, making three presentations for the Canadian Water Resources Association and Saskatchewan Network of Watershed Stewards conferences held May 2004;
- Developing a partnership with the Conservation Learning Centre (Riparian Management in a Cultivated Landscape). This is a four-year project along the Carrot River watershed. A range technician has been hired to develop this project. As well, three workshops, with 66 producers attending, have been conducted.

- Publications (brochures) and workshop elements will be developed and delivered to inform consumers of the cost and value of water. [2004-05 planned result – Environment]

  A set of three brochures was completed that include information on the cost and the value of water. Workshop and meeting presentation elements were also developed and delivered during speaking engagements, public and council meetings and information on the cost and value of water was provided as a means to advance water protection initiatives.

Measurement Results

Per cent of survey respondents indicating that they are willing to pay more for their drinking water

December 2001	May 2003	March 2005	Change
61	61.9	68	↑ 6.1

Source: Saskatchewan Environment Polling Results – March 2005

Based on a March 2005 poll conducted by Saskatchewan Environment, 68 per cent of people polled are willing to pay more to improve their drinking water (strongly or moderately agree). This value is 6.1 per cent greater than the previous poll in May 2003 and is 7 per cent greater than the December 2001 poll before implementation of the Strategy. Breaking polling results down further, 69.9 per cent of urban residents were willing to pay more, whereas 62.8 per cent of residents of rural municipalities were willing to pay more (strongly or moderately agree). The improving polling results may be related to the high level of confidence in safety of drinking water as noted for Goal 4, Objective 2. How consumers value quality water and their willingness to pay for it is an indication of their understanding of the importance of safe drinking water and the true cost to produce it.

Objective 2: Citizens and consumers trust the quality and reliability of their drinking water systems and are confident in the regulatory system

Consumer trust in drinking water and regulatory systems that govern them is vital to ensuring the long-term sustainability of waterworks. Consumers who trust the quality and reliability of their water supplies are more willing to support the production of safe drinking water in the future. Release of polling results also bolsters transparency and public trust.

Advancement of this objective has shown consistently high confidence in the quality of drinking water. Based on a March 2005 poll conducted by Saskatchewan Environment, 86 per cent of people polled strongly or moderately agree they are confident in the safety of their own drinking water, a decrease of one per cent since May 2004.

Key Results

The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- The Prairie Water Care Program and the Rural Water Quality Advisory Program will be re-evaluated and re-designed to provide monitoring and assessment support for the watershed planning process. The rural water quality program is a consultation service on drinking water quality for owners of small private systems. Prairie Water Care is an educational, hands-on program for volunteers interested in learning about water quality issues in their local watersheds. [2004-05 planned result – Saskatchewan Watershed Authority]

  The Rural Water Quality Advisory program was reviewed and redesigned. It continues to provide support to rural water users. Three FTEs were also reallocated to support sampling, monitoring and assessment activities for the seven priority watersheds. The Prairie Water Care Program and Lake Stewardship Program have been merged into a new Lake Stewardship Program, which involves volunteers in monitoring and stewardship activities on their lakes.

- Implement and publish the results of a polling strategy, which will allow tracking of public opinion and trust in drinking water and the associated regulatory systems. This strategy will allow the department to determine changes in opinion within the province and how those opinions compare with residents of other provinces in Canada. [2004-05 planned result – Environment]

  Saskatchewan Environment has completed its polling strategy. The strategy employs three main tools in terms of its strategy related to public polling on water related issues. It uses the available omnibus polling conducted by the provincial government to ask questions it believes important to performing its duties regarding drinking water.

It uses the polling results by GlobeScan Inc. (formerly Environics) polling company, which does quarterly polling of Canadian attitudes towards environmental and natural resources issues to track the department's performance in relation to other provinces. The department also, from time to time, conducts its own polling in Saskatchewan related to the overall performance of the department in relation to its mandate. Polling on drinking water related issues will continue in 2005-06. Some of the most recent March 2005 Saskatchewan Environment polling results are shown in the measurement results for Goal 4, Objectives 1 and 2.

Measurement Results

Per cent of survey respondents indicating that they agree or strongly agree that they are confident that their drinking water is safe

December 2001	May 2003	March 2005	Change
72	87	86	↓ 1

Source: Saskatchewan Environment Polling Results – March 2005

Based on a March 2005 Saskatchewan Environment poll, 86 per cent of people polled strongly or moderately agree they are confident in the safety of their own drinking water. This value is essentially the same as survey results, down 1 per cent from May 2003 (but still within the margin of error) and still represents an increase of 14 per cent since December 2001 when 72 per cent of people surveyed were very or somewhat confident in the quality of their tap water. Actions initiated under the Strategy such as waterworks inspections, consumer notification, implementation of water quality standards and consumer education efforts contribute to public confidence in the safety of drinking water. Ongoing attention to the elements of the strategy will contribute to maintenance of the high level of public confidence in safety of drinking water in the future. The measure is a focal point since it provides an indication of how well efforts to ensure safe drinking water has progressed.

Objective 3: Citizens have meaningful access to information about the quality of their water

Information on water quality is important in building public trust in water systems. Information must be understandable, current and readily accessible. To build full trust, information needs to be available both from the waterworks owner and the regulator.

Significant progress has been made in advancing this objective. The public has access to drinking water quality information on-line (see http://www.SaskH2O.ca/MyDrinkingWater.asp). Compliance with consumer notification requirements has increased and continues to serve as a means to directly advise municipal water users of the quality of their drinking water.

Key Results

The key actions originally planned for 2004-05 are shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- Regulatory requirements are in place that mandate waterworks owners to report annually to the consumers they serve on the quality of water produced and on the owner's compliance with Saskatchewan Environment's sample submission requirements. Reporting templates for waterworks owners will be distributed and the department will work with those owners seeking to comply with this requirement to aid in successful implementation. [2004-05 planned result – Environment]

  Reporting templates, water quality information and compliance figures were provided to waterworks owners to assist in reporting to consumers. Additional quarterly reporting and follow-up of water quality and sample submission information with waterworks owners has aided in both protecting drinking water and attaining better compliance with consumer reporting requirements.

- Regulations will be put in place that require municipalities to report to the public on their pricing and capital investment policies for their waterworks and related key financial

information, such as expenditures, revenues, supplementary funding required to cover costs, estimated capital replacement costs, capital reserves, estimated number of years of remaining service life of the infrastructure and level of cost recovery. This information will assist ratepayers' understanding of municipal waterworks and help them determine if they are satisfied with the policies. [2004-05 planned result – Government Relations]

Consultations were undertaken on these regulations with the municipal sector and other stakeholders outside of government. The regulations were simplified and further consultations were undertaken.

- The Annual Report on the State of Drinking Water Quality in Saskatchewan will be published. [2004-05 planned result – Environment]

  The second annual State of Drinking Water Quality Report was publicly released on July 29, 2004. This version represents the third annual report and was released by July 29, 2005 (http://www.saskh2o.ca/PDF/DrinkingWaterQualityAnnualReport2004-05.pdf).

- Further work towards adding information on wastewater and surface water quality to the SaskH2O website will be performed. Work to continue to support the provision of up to date drinking water information through the SaskH2O website (See http://www.saskh2o.ca". [2004-05 planned result – Environment]

  Work was initiated on database setup and record conversion to make information regarding wastewater and surface water quality available on the SaskH2O website during the 2004-05 fiscal year. Training was provided to users to enhance system utility and streamline activities such as inspection and reporting. Development of laboratory data loader and maintenance of drinking water related aspects of the SaskH2O website retained priority during the reporting period. Completion of wastewater and surface water components of the website is planned for 2005-06.

- The preparation, publication and distribution of a State of the Watershed Reporting Framework will be undertaken. This framework will outline proposed watershed scale, timing of reporting, priority of watershed reporting, indicators, and future reporting format. [2004-05 planned result – Saskatchewan Watershed Authority]

  A draft report has been prepared on watershed indicators that will form the basis for reporting on the health of watersheds. Work is continuing to prepare this report for publication.

- The feasibility of developing a Drinking Water Quality Index (DWQI) will be assessed to convey information to consumers on water quality and the adequacy of systems that produce drinking water. The DWQI will provide a means for consumers to understand the relative quality of their water (i.e. fair to excellent) and the state of the waterworks that produce it. [2004-05 planned result – Environment]

  Saskatchewan Environment has initiated evaluation/research and water quality data review to advance the concept of a drinking water quality index for community water supplies across the province. The department has performed comparative evaluations of the vast majority of regulated waterworks, which will be a useful component of any future index. The index, if feasible, may give a numeric and narrative description of water quality and treatment capability for each system.

Measurement Results

Number of system owners that publicly release water quality results

March 2002	March 2003	March 2004	March 2005	Annual Change
3	118	359	508	↑ 149

Source: Saskatchewan Environment – Environmental Management System

As of March 31, 2005, 508 (or 79.3 per cent) of waterworks owners publicly released water quality results to the consumers that they serve. This value represents a significant increase since the

2003-04 fiscal year and since the development of the Strategy. Notification of consumers is required on an annual basis for waterworks regulated by Saskatchewan Environment. Saskatchewan Environment will continue to pursue further progress on attainment of public reporting requirements during 2005-06. The number of system owners that publicly release water quality results is a good way to determine if consumers have meaningful access to information about the quality of their water.

Objective 4: Reduced consumption of water

Reduced consumption of water is important in minimizing costs and thereby properly valuing water. Water conservation is also necessary to protect water source quality and abundance, particularly in time of increased demand.

Based on the latest available information, average provincial water consumption increased in 2003, rising to 369 litres per capita per day or 81.17 imperial gallons per capita per day, an increase of 4.8 per cent. This may be largely attributable to drought in southern areas of the province during summer 2003.

Key Results
The key action originally planned for 2004-05 is shown below, along with the responsible partner, followed by our actual progress towards the key action and changes affecting the status of drinking water.

- The adoption of low water use fixtures and the benefits of lower costs associated with reduced consumption will be emphasized during any discussion with communities. SaskWater will promote the efficient utilization of infrastructure capacity such as community water allocations (i.e., from a regional water supply system), which will benefit from more accurately reflecting actual water usage. [2004-05 planned result – SaskWater]

  SaskWater emphasized the adoption of low water use fixtures and the benefits of lower costs associated with reduced consumption during discussions with communities. The efficient utilization of infrastructure capacity such as community water allocations (i.e., from a regional water supply system), which will benefit from more accurately reflecting actual water usage was also promoted. In addition, SaskWater continues to promote the user pay concept, the need to manage utilities on a commercial basis, and the need for communities to carefully consider the tradeoffs between quality/cost and quantity/price when they seek a solution to their water needs.

  There has been increasing awareness and acceptance by communities that higher water rates must be charged in order to support more sustainable water treatment systems. There has not, however, been any work undertaken to date on the development of a formal water conservation public information program.

- A brochure to educate the public of the benefits of reduced water consumption, conservation and reuse will be developed. Workshop presentation elements as a further means to deliver these messages will also developed and delivered. [2004-05 planned result – Environment]

  Saskatchewan Environment completed a set of brochures on water conservation, cost and the value of water. These brochures will be provided to Saskatchewan Environment's regulated water clients, via the internet, etc. The information included in these brochures will also be employed at workshops, presentations and in meetings with waterworks owners and councils.

- A water conservation strategy will be developed that will review all water use sectors to determine current and future policy requirements and possible conservation targets. [2004-05 planned result – Saskatchewan Watershed Authority]

  Public consultations have been completed with approximately 300 people in attendance. A further 60 people submitted written or online responses to questions. There were 15 formal briefs submitted from municipalities and other stakeholder groups. Based on public responses, work has begun on a Water Conservation Plan that is scheduled for release before the end of 2005.

Measurement Results

Average per capita consumption [gallons per day]

2000-2001	2001-2002	2002-2003	2003	2004	Annual Change
80.3	80.7	77.4	81.2	NA	↑3.8

NA: Not Available
Source: Saskatchewan Watershed Authority

Average provincial consumption for the period January 1 to December 31 2003 was 369 litres per capita (LCD) per day or 81.17 imperial gallons. A complete dataset for 2004 is not currently available. The database source of the performance results for this measure has a time lag of about six months; January 1 to December 31, 2004 data will be available in July 2005.

Reduction of water use is encouraged by promotional efforts by SaskWater as well as greater general emphasis through application of the Strategy on the value and importance of drinking water quality. Brochures were produced during 2004-05 to encourage further reduction in water consumption. Officials will also reinforce this measure during workshops and meetings with waterworks owners by providing information on water value and pricing.

The close relationship between price and use of water is exemplified by SaskWater's experience with Star City. SaskWater connected this community to its Melfort regional treated water supply system in 2003. Water rates increased by 65.8 per cent to $7.70/sales unit (1000 gallons) in 2004 and consumption of water declined by 53.4 per cent to 285 LCD for 2004.

2004-05 Financial Results

The following table outlines information on the actual and budgeted expenditures relating to the Safe Drinking Water Strategy. Funding for this Strategy comes from various Government departments and agencies and is contained in their respective budgets. Variance explanations have been provided for all variances that are greater than $5,000.

(in thousands of dollars)

Department	Budget	Actual Expenditure	Variance Over (Under)
Environment	2,963	2,675	(288)[1]
Saskatchewan Government Relations	13,800	11,391	(2,409)[2]
Health			
Regional Health Services*			
- Regional Health Authorities Base Operating Funding	456	456	
- Regional Targeted Programs and Services	20	10	(10)[3]
Provincial Laboratory – Environmental Services	630	630	
Saskatchewan Watershed Authority**			
- Operations	395	395	
- Water Control	4,012	4,012	
- Water Quality	1,711	1,711	
Total	**23,987**	**21,280**	**(2,707)**

*This funding which is specifically allocated to drinking water safety, is in addition to Regional Health Authority funding of Medical Health Officer, Public Health Inspectors and Public Health Nurse services related to inspection of licensed facilities, disease investigation and surveillance.

** Expenditures shown are grants from the General Revenue Fund to the Saskatchewan Watershed Authority for these programs.

Explanations of Major Variances

[1] Under expenditure mainly due to vacancy management, delayed staffing and secondment opportunities. Saskatchewan Environment's FTE utilization for drinking water related programming during the 2004-05 fiscal year totaled 31.4 of 37.7 budgeted FTEs, the result of vacancies, delayed staffing and secondments. Saskatchewan Health FTE utilization for the Provincial Laboratory was at full level of 19.5 FTE's during the reporting period. In addition to the FTEs within Saskatchewan Health, funding is provided to Regional Health Authorities for water related programs and surveillance. It is difficult to state the actual number of Regional Health Authority FTEs that are dedicated to water as a number of different disciplines (i.e. Medical Health Officers, Public Health Inspectors and Public Health Nurses) can become involved in water and or water related disease surveillance.

[2] The 2004-05 budget provided an estimated $13.8 million for water and sewer projects under CSIP. By the end of the year, $11.4 million was spent on the projects. The full amount budgeted was not spent because some projects were delayed and have been rolled over to the following year. Wet weather during the 2004-05 construction season delayed many of these projects. Also, the actual cost of some projects came in below the estimated cost.

[3] Under expenditure due to planned 2004-05 training on watershed protection for Health Region Public Health Inspectors was deferred to the fall of 2005.

For More Information

Further information on the Safe Drinking Water Strategy and information contained in this report is available on the SaskH2O Website (http://www.SaskH2O.ca) and on Saskatchewan Environment's Website (http://www.se.gov.sk.ca/environment/protection/water/water.asp). Further detailed information on the status of drinking water in Saskatchewan is available from Saskatchewan Environment or at the SaskH2O Website (http://www.SaskH2O.ca/news.asp or http://www.SaskH20.ca/MyDrinkingWater.asp).

A performance plan for the Safe Drinking Water Strategy for the 2004-05 fiscal year was published on March 23, 2004 with the release of the 2004-05 provincial budget. A copy of the plan for the 2004-05 Safe Drinking Water Strategy is available on the Internet at http://www.gov.sk.ca/finance/accountability/default.htm. Next year's annual report will address both the status of drinking water and the published 2005-06 strategic plan.

Further information is also available by contacting:

Drinking Water Quality Section
Environmental Protection Branch
Saskatchewan Environment
3211 Albert Street
REGINA, SK S4S 5W6
Telephone: (306) 787-6504

or at Saskatchewan Environment's inquiry center
toll free in Saskatchewan at 1-800-567-4224.

Feedback on the performance results may also be provided to Saskatchewan Environment through the contact information immediately above.

An electronic copy of this report is available on the Internet (http://www.SaskH2O.ca/news.asp).

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